FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 1 OF 1

LAWRENCE COUNTY, ALABAMA

AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
TOWN OF COURTLAND	010141
TOWN OF HILLSBORO	010305
LAWRENCE COUNTY UNINCORPORATED AREAS	010324
CITY OF MOULTON	010142
TOWN OF NORTH COURTLAND	010444
TOWN OF TOWN CREEK	010143

FEMA

PRELIMINARY:

MAY 13, 2016

FLOOD INSURANCE STUDY NUMBER
01079CV000B

Version Number 2.3.3.2

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FLOOD INSURANCE STUDY REPORT
LAWRENCE COUNTY, ALABAMA

SECTION 1.0 – INTRODUCTION

1.1 The National Flood Insurance Program

The National Flood Insurance Program (NFIP) is a voluntary Federal program that enables property owners in participating communities to purchase insurance protection against losses from flooding. This insurance is designed to provide an insurance alternative to disaster assistance to meet the escalating costs of repairing damage to buildings and their contents caused by floods.

For decades, the national response to flood disasters was generally limited to constructing flood-control works such as dams, levees, sea-walls, and the like, and providing disaster relief to flood victims. This approach did not reduce losses nor did it discourage unwise development. In some instances, it may have actually encouraged additional development. To compound the problem, the public generally could not buy flood coverage from insurance companies, and building techniques to reduce flood damage were often overlooked.

In the face of mounting flood losses and escalating costs of disaster relief to the general taxpayers, the U.S. Congress created the NFIP. The intent was to reduce future flood damage through community floodplain management ordinances, and provide protection for property owners against potential losses through an insurance mechanism that requires a premium to be paid for the protection.

The U.S. Congress established the NFIP on August 1, 1968, with the passage of the National Flood Insurance Act of 1968. The NFIP was broadened and modified with the passage of the Flood Disaster Protection Act of 1973 and other legislative measures. It was further modified by the National Flood Insurance Reform Act of 1994 and the Flood Insurance Reform Act of 2004. The NFIP is administered by the Federal Emergency Management Agency (FEMA), which is a component of the Department of Homeland Security (DHS).

Participation in the NFIP is based on an agreement between local communities and the Federal Government. If a community adopts and enforces floodplain management regulations to reduce future flood risks to new construction and substantially improved structures in Special Flood Hazard Areas (SFHAs), the Federal Government will make flood insurance available within the community as a financial protection against flood losses. The community's floodplain management regulations must meet or exceed criteria established in accordance with Title 44 Code of Federal Regulations (CFR) Part 60.3, *Criteria for land Management and Use*.

SFHAs are delineated on the community's Flood Insurance Rate Maps (FIRMs). Under the NFIP, buildings that were built before the flood hazard was identified on the community's FIRMs are generally referred to as "Pre-FIRM" buildings. When the NFIP was created, the U.S. Congress recognized that insurance for Pre-FIRM buildings would be prohibitively expensive if the premiums were not subsidized by the Federal Government. Congress also recognized that most of these floodprone buildings were built by individuals who did not have sufficient knowledge of the flood hazard to make informed decisions. The NFIP requires that full actuarial rates reflecting the complete flood risk be charged on all buildings constructed or substantially improved on or after the effective date of the initial FIRM for the community or after December 31, 1974, whichever is

later. These buildings are generally referred to as “Post-FIRM” buildings.

1.2 Purpose of this Flood Insurance Study Report

This Flood Insurance Study (FIS) Report revises and updates information on the existence and severity of flood hazards for the study area. The studies described in this report developed flood hazard data that will be used to establish actuarial flood insurance rates and to assist communities in efforts to implement sound floodplain management.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive than the minimum Federal requirements. Contact your State NFIP Coordinator to ensure that any higher State standards are included in the community’s regulations.

1.3 Jurisdictions Included in the Flood Insurance Study Project

This FIS Report covers the entire geographic area of Lawrence County, Alabama.

The jurisdictions that are included in this project area, along with the Community Identification Number (CID) for each community and the 8-digit Hydrologic Unit Codes (HUC-8) sub-basins affecting each, are shown in Table 1. The Flood Insurance Rate Map (FIRM) panel numbers that affect each community are listed. If the flood hazard data for the community is not included in this FIS Report, the location of that data is identified.

The location of flood hazard data for participating communities in multiple jurisdictions is also indicated in the table.

Jurisdictions that have no identified SFHAs as of the effective date of this study are indicated in the table. Changed conditions in these communities (such as urbanization or annexation) or the availability of new scientific or technical data about flood hazards could make it necessary to determine SFHAs in these jurisdictions in the future.

Table 1: Listing of NFIP Jurisdictions

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Town of Courtland	010141	06030005	01079C0112C, 01079C0116C	
Town of Hillsboro	010305	06030002	01079C0139D, 01079C0143D	

Table 1: Listing of NFIP Jurisdictions

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Lawrence County, Unincorporated Areas	010324	06030002, 06030005, 06030006, 03160110	01079C0100C, 01079C0105C, 01079C0112C, 01079C0114C, 01079C0115C, 01079C0116C, 01079C0118C, 01079C0200C, 01079C0225C, 01079C0230C, 01079C0235C, 01079C0236C, 01079C0237C, 01079C0238C, 01079C0239C, 01079C0243C, 01079C0245C, 01079C0325C, 01079C0350C, 01079C0355C, 01079C0356C, 01079C0357C, 01079C0358C, 01079C0365C, 01079C0425C[1], 01079C0450C[1], 01079C0475C[1], 01079C0500C[1], 01079C0525C[1], 01079C0550C[1], 01079C0020D, 01079C0025D[1] , 01079C0040D, 01079C0045D, 01079C0050D[1], 01079C0065D, 01079C0075D[1], 01079C0110D, 01079C0120D, 01079C0130D, 01079C0135D, 01079C0139D, 01079C0140D, 01079C0143D, 01079C0145D, 01079C0155D, 01079C0165D, 01079C0175D[1], 01079C0255D, 01079C0260D, 01079C0265D, 01079C0270D, 01079C0280D, 01079C0290D, 01079C0300D[1], 01079C0359D, 01079C0370D, 01079C0380D, 01079C0385D, 01079C0390D, 01079C0395D, 01079C0405D, 01079C0505D, 01079C0510D	
City of Moulton	010142	06030002, 06030005,	01079C0243C, 01079C0245C, 01079C0355C, 01079C0356C, 01079C0357C, 01079C0358C, 01079C0359D, 01079C0380D	
Town of North Courtland	010444	06030005	01079C0112C, 01079C0116C	
Town of Town Creek	010143	06030005	01079C0100C	

[1] Panel Not Printed

1.4 Considerations for using this Flood Insurance Study Report

The NFIP encourages State and local governments to implement sound floodplain management programs. To assist in this endeavor, each FIS Report provides floodplain data, which may include

a combination of the following: 10-, 4-, 2-, 1-, and 0.2-percent annual chance flood elevations (the 1% annual chance flood elevation is also referred to as the Base Flood Elevation (BFE)); delineations of the 1% annual chance and 0.2% annual chance floodplains; and 1% annual chance floodway. This information is presented on the FIRM and/or in many components of the FIS Report, including Flood Profiles, Floodway Data tables, Summary of Non-Coastal Stillwater Elevations tables, and Coastal Transect Parameters tables (not all components may be provided for a specific FIS).

This section presents important considerations for using the information contained in this FIS Report and the FIRM, including changes in format and content. Figures 1, 2, and 3 present information that applies to using the FIRM with the FIS Report.

- Part or all of this FIS Report may be revised and republished at any time. In addition, part of this FIS Report may be revised by a Letter of Map Revision (LOMR), which does not involve republication or redistribution of the FIS Report. Refer to Section 6.5 of this FIS Report for information about the process to revise the FIS Report and/or FIRM.

  It is, therefore, the responsibility of the user to consult with community officials by contacting the community repository to obtain the most current FIS Report components. Communities participating in the NFIP have established repositories of flood hazard data for floodplain management and flood insurance purposes. Community map repository addresses are provided in Table 31, "Map Repositories," within this FIS Report.

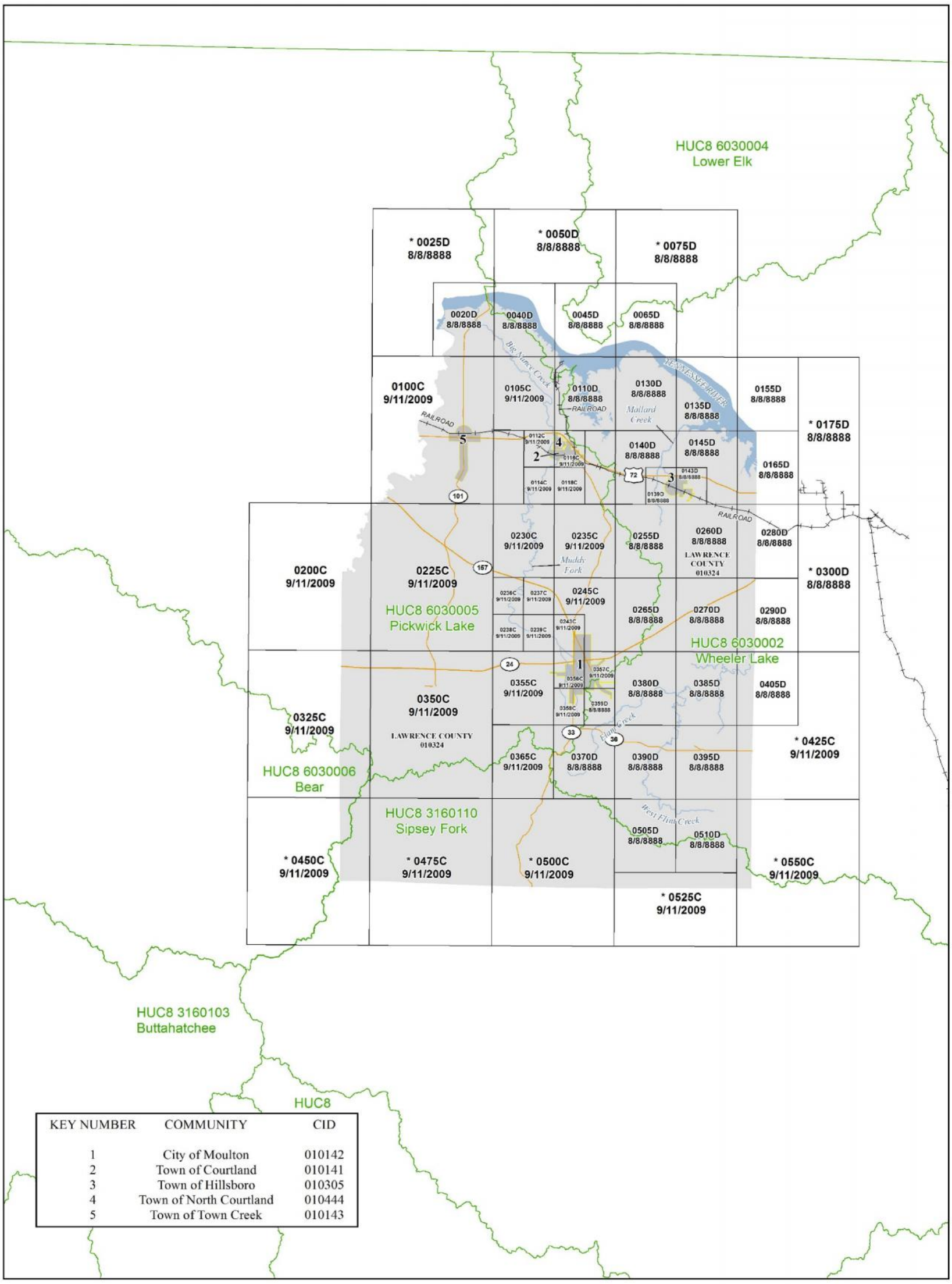
- New FIS Reports are frequently developed for multiple communities, such as entire counties. A countywide FIS Report incorporates previous FIS Reports for individual communities and the unincorporated area of the county (if not jurisdictional) into a single document and supersedes those documents for the purposes of the NFIP.

  The initial Countywide FIS Report for Lawrence County became effective on September 11, 2009. Refer to Table 28 for information about subsequent revisions to the FIRMs.

- The CRS is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. Visit the FEMA Web site at http://www.fema.gov or contact your appropriate FEMA Regional Office for more information about this program.

- FEMA has developed a *Guide to Flood Maps* (FEMA 258) and online tutorials to assist users in accessing the information contained on the FIRM. These include how to read panels and step-by-step instructions to obtain specific information. To obtain this guide and other assistance in using the FIRM, visit the FEMA Web site at http://www.fema.gov.

Figure 1: FIRM Panel Index



KEY NUMBER	COMMUNITY	CID
1	City of Moulton	010142
2	Town of Courtland	010141
3	Town of Hillsboro	010305
4	Town of North Courtland	010444
5	Town of Town Creek	010143

1 inch = 29,124 feet 1:349,492

Feet
0 10,000 20,000 40,000

Map Projection:
Universal Transverse Mercator Zone 16 North;
North American Datum 1983

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT

HTTP://MSC.FEMA.GOV

SEE FLOOD INSURANCE STUDY FOR ADDITIONAL INFORMATION

* PANEL NOT PRINTED - AREA OUTSIDE COUNTY BOUNDARY
** PANEL NOT PRINTED - NO SPECIAL FLOOD HAZARD AREAS

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP INDEX

LAWRENCE COUNTY, AL and Incorporated Areas

PANELS PRINTED:

0020, 0040, 0045, 0065, 0100, 0105, 0110, 0112, 0114, 0115, 0116, 0118, 0120, 0130, 0135, 0139, 0140, 0143, 0145, 0155, 0165, 0200, 0225, 0230, 0235, 0236, 0237, 0238, 0239, 0243, 0245, 0255, 0260, 0265, 0270, 0280, 0290, 0325, 0350, 0355, 0356, 0357, 0358, 0359, 0365, 0370, 0380, 0385, 0390, 0395, 0405, 0505, 0510

FEMA

PRELIMINARY

MAP NUMBER
01079CIND0B

MAP REVISED

Figure 2: FIRM Notes to Users

NOTES TO USERS

For information and questions about this map, available products associated with this FIRM including historic versions of this FIRM, how to order products, or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Map Service Center website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the FEMA Map Service Center website or by calling the FEMA Map Information eXchange.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Map Service Center at the number listed above.

For community and countywide map dates, refer to Table 28 in this FIS Report.

To determine if flood insurance is available in the community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

PRELIMINARY FIS REPORT: FEMA maintains information about map features, such as street locations and names, in or near designated flood hazard areas. Requests to revise information in or near designated flood hazard areas may be provided to FEMA during the community review period, at the final Consultation Coordination Officer's meeting, or during the statutory 90-day appeal period. Approved requests for changes will be shown on the final printed FIRM.

The map is for use in administering the NFIP. It may not identify all areas subject to flooding, particularly from local drainage sources of small size. Consult the community map repository to find updated or additional flood hazard information.

BASE FLOOD ELEVATIONS: For more detailed information in areas where Base Flood Elevations (BFEs) and/or floodways have been determined, consult the Flood Profiles and Floodway Data tables within this FIS Report. Use the flood elevation data within the FIS Report in conjunction with the FIRM for construction and/or floodplain management.

FLOODWAY INFORMATION: Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the FIS Report for this jurisdiction.

FLOOD CONTROL STRUCTURE INFORMATION: Certain areas not in Special Flood Hazard Areas may be protected by flood control structures. Refer to Section 4.3 "Non-Levee Flood Protection Measures" of this FIS Report for information on flood control structures for this jurisdiction.PROJECTION INFORMATION: The projection used in the preparation of the map was Universal Transverse Mercator (UTM) Zone 16N. The horizontal datum was North American Datum 1983. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the FIRM.

Figure 2. FIRM Notes to Users

ELEVATION DATUM: Flood elevations on the FIRM are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

Local vertical monuments may have been used to create the map. To obtain current monument information, please contact the appropriate local community listed in Table 31 of this FIS Report.

BASE MAP INFORMATION: Base map information shown on the FIRM was provided by Lawrence County at a scale of 1:24,000. For information about base maps, refer to Section 6.2 “Base Map” in this FIS Report.

The map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables may reflect stream channel distances that differ from what is shown on the map.

Corporate limits shown on the map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after the map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Figure 2. FIRM Notes to Users

NOTES FOR FIRM INDEX

REVISIONS TO INDEX: As new studies are performed and FIRM panels are updated within Lawrence County, AL, corresponding revisions to the FIRM Index will be incorporated within the FIS Report to reflect the effective dates of those panels. Please refer to Table 28 of this FIS Report to determine the most recent FIRM revision date for each community. The most recent FIRM panel effective date will correspond to the most recent index date.

FLOOD RISK REPORT: A Flood Risk Report (FRR) may be available for many of the flooding sources and communities referenced in this FIS Report. The FRR is provided to increase public awareness of flood risk by helping communities identify the areas within their jurisdictions that have the greatest risks. Although non-regulatory, the information provided within the FRR can assist communities in assessing and evaluating mitigation opportunities to reduce these risks. It can also be used by communities developing or updating flood risk mitigation plans. These plans allow communities to identify and evaluate opportunities to reduce potential loss of life and property. However, the FRR is not intended to be the final authoritative source of all flood risk data for a project area; rather, it should be used with other data sources to paint a comprehensive picture of flood risk.

Figure 3: Map Legend for FIRM

SPECIAL FLOOD HAZARD AREAS: *The 1% annual chance flood, also known as the base flood or 100-year flood, has a 1% chance of happening or being exceeded each year. Special Flood Hazard Areas are subject to flooding by the 1% annual chance flood. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood. The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights. See note for specific types. If the floodway is too narrow to be shown, a note is shown.*	
	Special Flood Hazard Areas subject to inundation by the 1% annual chance flood (Zones A, AE, AH, AO, AR, A99, V and VE)
Zone A	The flood insurance rate zone that corresponds to the 1% annual chance floodplains. No base (1% annual chance) flood elevations (BFEs) or depths are shown within this zone.
Zone AE	The flood insurance rate zone that corresponds to the 1% annual chance floodplains. Base flood elevations derived from the hydraulic analyses are shown within this zone.
Zone AH	The flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot BFEs derived from the hydraulic analyses are shown at selected intervals within this zone.
Zone AO	The flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot depths derived from the hydraulic analyses are shown within this zone.
Zone AR	The flood insurance rate zone that corresponds to areas that were formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
Zone A99	The flood insurance rate zone that corresponds to areas of the 1% annual chance floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or flood depths are shown within this zone.
Zone V	The flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Base flood elevations are not shown within this zone.
Zone VE	Zone VE is the flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Base flood elevations derived from the coastal analyses are shown within this zone as static whole-foot elevations that apply throughout the zone.
	Regulatory Floodway determined in Zone AE.
	Non-encroachment zone (see Section 2.4 of this FIS Report for more information)

Figure 3: Map Legend for FIRM

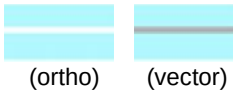
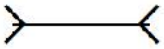
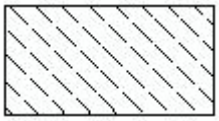
OTHER AREAS OF FLOOD HAZARD	
	Shaded Zone X: Areas of 0.2% annual chance flood hazards and areas of 1% annual chance flood hazards with average depths of less than 1 foot or with drainage areas less than 1 square mile.
	Future Conditions 1% Annual Chance Flood Hazard – Zone X: The flood insurance rate zone that corresponds to the 1% annual chance floodplains that are determined based on future-conditions hydrology. No base flood elevations or flood depths are shown within this zone.
	Area with Reduced Flood Risk due to Levee: Areas where an accredited levee, dike, or other flood control structure has reduced the flood risk from the 1% annual chance flood. See Notes to Users for important information.
OTHER AREAS	
	Zone D (Areas of Undetermined Flood Hazard): The flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.
	Unshaded Zone X: Areas of minimal flood hazard.
FLOOD HAZARD AND OTHER BOUNDARY LINES	
	Flood Zone Boundary (white line on ortho-photography-based mapping; gray line on vector-based mapping)
	Limit of Study
	Jurisdiction Boundary
	Limit of Moderate Wave Action (LiMWA): Indicates the inland limit of the area affected by waves greater than 1.5 feet
GENERAL STRUCTURES	
Aqueduct *Channel* *Culvert* *Storm Sewer*	Channel, Culvert, Aqueduct, or Storm Sewer
Dam *Jetty* *Weir*	Dam, Jetty, Weir
	Levee, Dike, or Floodwall
 *Bridge*	Bridge

Figure 3: Map Legend for FIRM

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AND OTHERWISE PROTECTED AREAS (OPA): *CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas. See Notes to Users for important information.*

CBRS AREA 09/30/2009

Coastal Barrier Resources System Area: Labels are shown to clarify where this area shares a boundary with an incorporated area or overlaps with the floodway.



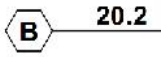
OTHERWISE PROTECTED AREA 09/30/2009

Otherwise Protected Area

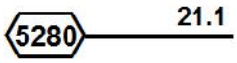
REFERENCE MARKERS

River mile Markers

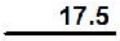
CROSS SECTION & TRANSECT INFORMATION



Lettered Cross Section with Regulatory Water Surface Elevation (BFE)



Numbered Cross Section with Regulatory Water Surface Elevation (BFE)

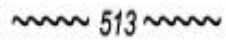


Unlettered Cross Section with Regulatory Water Surface Elevation (BFE)

Coastal Transect

Profile Baseline: Indicates the modeled flow path of a stream and is shown on FIRM panels for all valid studies with profiles or otherwise established base flood elevation.

Coastal Transect Baseline: Used in the coastal flood hazard model to represent the 0.0-foot elevation contour and the starting point for the transect and the measuring point for the coastal mapping.



Base Flood Elevation Line

ZONE AE (EL 16)

Static Base Flood Elevation value (shown under zone label)

ZONE AO (DEPTH 2)

Zone designation with Depth

ZONE AO (DEPTH 2) (VEL 15 FPS)

Zone designation with Depth and Velocity

Figure 3: Map Legend for FIRM

BASE MAP FEATURES	
Missouri Creek	River, Stream or Other Hydrographic Feature
234	Interstate Highway
234	U.S. Highway
234	State Highway
234	County Highway
MAPLE LANE	Street, Road, Avenue Name, or Private Drive if shown on Flood Profile
RAILROAD	Railroad
	Horizontal Reference Grid Line
	Horizontal Reference Grid Ticks
+	Secondary Grid Crosshairs
Land Grant	Name of Land Grant
7	Section Number
R. 43 W. T. 22 N.	Range, Township Number
$^{42}76^{000m}E$	Horizontal Reference Grid Coordinates (UTM)
365000 FT	Horizontal Reference Grid Coordinates (State Plane)
80î 16' 52.5"	Corner Coordinates (Latitude, Longitude)

SECTION 2.0 – FLOODPLAIN MANAGEMENT APPLICATIONS

2.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1% annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2% annual chance (500-year) flood is employed to indicate additional areas of flood hazard in the community.

Each flooding source included in the project scope has been studied and mapped using professional engineering and mapping methodologies that were agreed upon by FEMA and Lawrence County as appropriate to the risk level. Flood risk is evaluated based on factors such as known flood hazards and projected impact on the built environment. Engineering analyses were performed for each studied flooding source to calculate its 1% annual chance flood elevations; elevations corresponding to other floods (e.g. 10-, 4-, 2-, 0.2-percent annual chance, etc.) may have also been computed for certain flooding sources. Engineering models and methods are described in detail in Section 5.0 of this FIS Report. The modeled elevations at cross sections were used to delineate the floodplain boundaries on the FIRM; between cross sections, the boundaries were interpolated using elevation data from various sources. More information on specific mapping methods is provided in Section 6.0 of this FIS Report.

Depending on the accuracy of available topographic data (Table 23), study methodologies employed (Section 5.0), and flood risk, certain flooding sources may be mapped to show both the 1% and 0.2% annual chance floodplain boundaries, regulatory water surface elevations (BFEs), and/or a regulatory floodway. Similarly, other flooding sources may be mapped to show only the 1% annual chance floodplain boundary on the FIRM, without published water surface elevations. In cases where the 1% and 0.2% annual chance floodplain boundaries are close together, only the 1% annual chance floodplain boundary is shown on the FIRM. Figure 3, "Map Legend for FIRM", describes the flood zones that are used on the FIRMs to account for the varying levels of flood risk that exist along flooding sources within the project area. Table 2 and Table 3 indicate the flood zone designations for each flooding source and each community within Lawrence County, AL, respectively.

Table 2, "Flooding Sources Included in this FIS Report," lists each flooding source, including its study limits, affected communities, mapped zone on the FIRM, and the completion date of its engineering analysis from which the flood elevations on the FIRM and in the FIS Report were derived. Descriptions and dates for the latest hydrologic and hydraulic analyses of the flooding sources are shown in Table 13. Floodplain boundaries for these flooding sources are shown on the FIRM (published separately) using the symbology described in Figure 3. On the map, the 1% annual chance floodplain corresponds to the SFHAs. The 0.2% annual chance floodplain shows areas that, although out of the regulatory floodplain, are still subject to flood hazards.

Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data. The procedures to remove these areas from the SFHA are described in Section 6.5 of this FIS Report.

2.2 Floodways

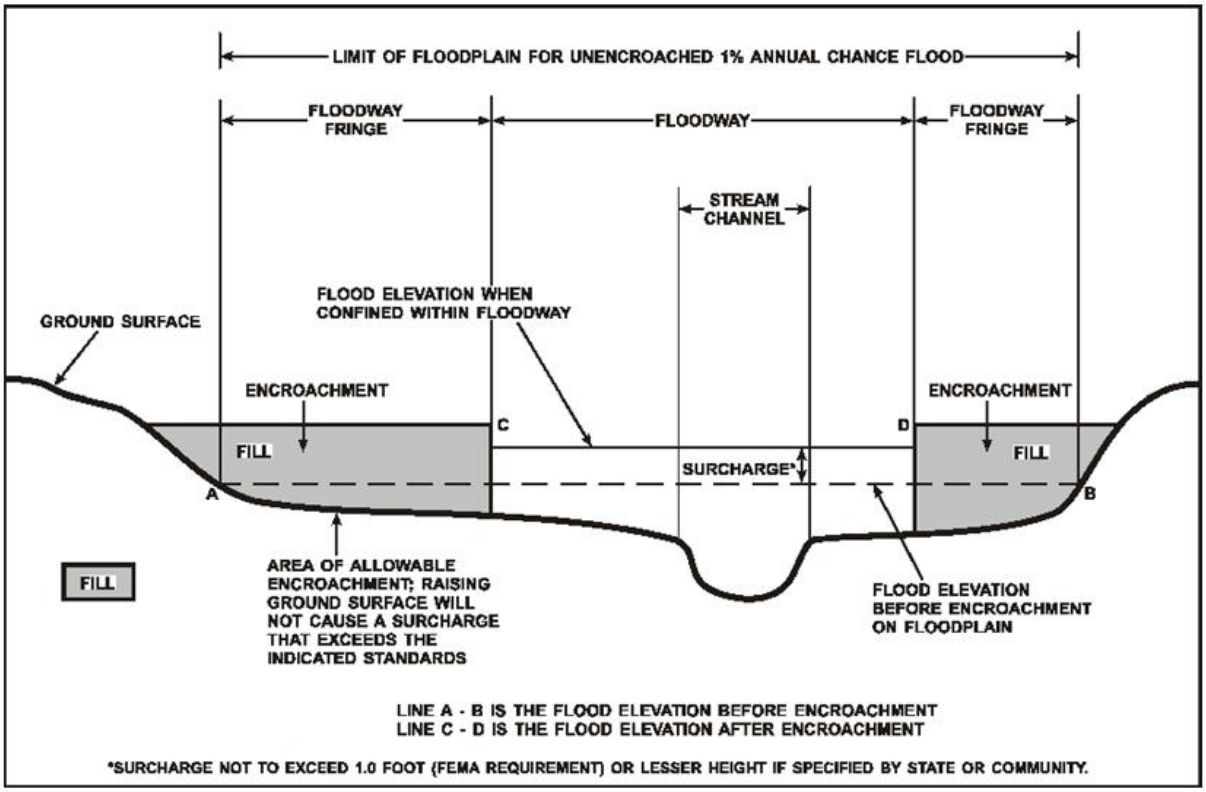
Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases

flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard.

For purposes of the NFIP, a floodway is used as a tool to assist local communities in balancing floodplain development against increasing flood hazard. With this approach, the area of the 1% annual chance floodplain on a river is divided into a floodway and a floodway fringe based on hydraulic modeling. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment in order to carry the 1% annual chance flood. The floodway fringe is the area between the floodway and the 1% annual chance floodplain boundaries where encroachment is permitted. The floodway must be wide enough so that the floodway fringe could be completely obstructed without increasing the water surface elevation of the 1% annual chance flood more than 1 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 4.

To participate in the NFIP, Federal regulations require communities to limit increases caused by encroachment to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this project are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway projects.

Figure 4: Floodway Schematic



Floodway widths presented in this FIS Report and on the FIRM were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. For certain stream segments, floodways were adjusted so that the amount of floodwaters conveyed on each side of the floodplain

would be reduced equally. The results of the floodway computations have been tabulated for selected cross sections and are shown in Table 24, “Floodway Data.”

Table 2: Flooding Sources Included in this FIS Report

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Almon Branch	City of Moulton, Lawrence County	Crow Branch confluence	Approximately 570 feet upstream of Byler Road	06030005	1.1		Y	AE	1979
Big Nance Creek	Town of Courtland, Town of North Courtland, Lawrence County	Approximately 420 feet upstream of U.S. Route 72	At the downstream side of County Route 150	06030005	3.8		Y	AE	1978
Big Shoal Creek	Lawrence County	West Flint Creek confluence	Approximately 1,400 feet upstream of County Route 214	06030002	13.7		N	AE	2015
Crow Branch	City of Moulton, Lawrence County	Muddy Fork confluence	Approximately 0.4 mile upstream of State Route 33	06030005	3.1		Y	AE	1979
Elam Creek	Lawrence County	West Flint Creek confluence	Approximately 0.96 mile upstream of County Route 90	06030002	13.9		N	AE	2015
Lateral No. 8	City of Moulton, Lawrence County	Muddy Fork confluence	Approximately 570 feet downstream of State Route33	06030005	1.0		Y	AE	1981
Lateral No. 8-14	City of Moulton	Approximately 150 feet downstream of State Route 24	Approximately 0.3 mile upstream of Court Street	06030005	1.1		Y	AE	1979
Lateral No. 11	City of Moulton	Lateral No. 8 confluence	Approximately 0.4 mile upstream of Main Street	06030005	0.6		Y	AE	1979

Table 2: Flooding Sources Included in this FIS Report

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Lateral No. 12	City of Moulton	Lateral No. 8-14 confluence	At the downstream side of Edna Street	06030005	0.7		Y	AE	1979
Mallard Creek	Lawrence County	Tennessee River confluence	Approximately 80 feet downstream of U.S. Route 72	06030002	7.8		N	AE	2015
McDaniel Creek	Lawrence County	West Flint Creek confluence	Approximately 920 feet downstream of County Route 203	06030002	2.8		N	AE	2015
Muddy Fork	Lawrence County	Approximately 0.7 mile downstream of County Route 234	Approximately 0.4 mile downstream of County Route 167	06030005	4.0		Y	AE	1981
Schoolhouse Branch	Town of Courtland, Lawrence County	Big Nance Creek confluence	Approximately 0.4 mile upstream of Monroe Street	06030005	0.5		Y	AE	1978
Tennessee River	Lawrence County	At the northwest county boundary	At the northeast county boundary	06030002, 06030005	44.5		N	AE	2015
Tributary to Mallard Creek	Town of Hillsboro, Lawrence County	Mallard Creek confluence	At the upstream side of Dogwood Road	06030002	2.4		N	AE	2015
West Flint Creek	Lawrence County	Approximately 1.6 miles downstream of County Route 327	Approximately 1.5 miles upstream of State Route 36	06030002	28.5		N	AE	2015

All floodways that were developed for this Flood Risk Project are shown on the FIRM using the symbology described in Figure 3. In cases where the floodway and l% annual chance floodplain boundaries are either close together or collinear, only the floodway boundary has been shown on the FIRM. For information about the delineation of floodways on the FIRM, refer to Section 6.3.

2.3 Base Flood Elevations

The hydraulic characteristics of flooding sources were analyzed to provide estimates of the elevations of floods of the selected recurrence intervals. The Base Flood Elevation (BFE) is the elevation of the 1% annual chance flood. These BFEs are most commonly rounded to the whole foot, as shown on the FIRM, but in certain circumstances or locations they may be rounded to 0.1 foot. Cross section lines shown on the FIRM may also be labeled with the BFE rounded to 0.1 foot. Whole-foot BFEs derived from engineering analyses that apply to coastal areas, areas of ponding, or other static areas with little elevation change may also be shown at selected intervals on the FIRM.

Cross sections with BFEs shown on the FIRM correspond to the cross sections shown in the Floodway Data table and Flood Profiles in this FIS Report. BFEs are primarily intended for flood insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS Report in conjunction with the data shown on the FIRM.

2.4 Non-Encroachment Zones

Some States and communities use non-encroachment zones to manage floodplain development. For flooding sources with medium flood risk, field surveys are often not collected and surveyed bridge and culvert geometry is not developed. Standard hydrologic and hydraulic analyses are still performed to determine BFEs in these areas. However, floodways are not typically determined, since specific channel profiles are not developed. To assist communities with managing floodplain development in these areas, a “non-encroachment zone” may be provided. While not a FEMA designated floodway, the non-encroachment zone represents that area around the stream that should be reserved to convey the 1% annual chance flood event. As with a floodway, all surcharges must fall within the acceptable range in the non-encroachment zone.

General setbacks can be used in areas of lower risk (e.g. unnumbered Zone A), but these are not considered sufficient where unnumbered Zone A is replaced by Zone AE. The NFIP requires communities to ensure that any development in a non-encroachment area causes no increase in BFEs. Communities must generally prohibit development within the area defined by the non-encroachment width to meet the NFIP requirement.

Non-encroachment determinations may be delineated where it is not possible to delineate floodways because specific channel profiles with bridge and culvert geometry were not developed. Any non-encroachment determinations for this Flood Risk Project have been tabulated for selected cross sections and are shown in Table 25, “Flood Hazard and Non-Encroachment Data for Selected Streams.” Areas for which non-encroachment zones are provided show BFEs and the 1% annual chance floodplain boundaries mapped as zone AE on the FIRM but no floodways.

2.5 Coastal Flood Hazard Areas

This section is not applicable to this Flood Risk Project.

2.5.1 Water Elevations and the Effects of Waves

This section is not applicable to this Flood Risk Project.

Figure 5: Wave Runup Transect Schematic

[Not Applicable to this Flood Risk Project]

2.5.2 Floodplain Boundaries and BFEs for Coastal Areas

This section is not applicable to this Flood Risk Project.

2.5.3 Coastal High Hazard Areas

This section is not applicable to this Flood Risk Project.

Figure 6: Coastal Transect Schematic

[Not Applicable to this Flood Risk Project]

2.5.4 Limit of Moderate Wave Action

This section is not applicable to this Flood Risk Project.

SECTION 3.0 – INSURANCE APPLICATIONS

3.1 National Flood Insurance Program Insurance Zones

For flood insurance applications, the FIRM designates flood insurance rate zones as described in Figure 3, "Map Legend for FIRM." Flood insurance zone designations are assigned to flooding sources based on the results of the hydraulic or coastal analyses. Insurance agents use the zones shown on the FIRM and depths and base flood elevations in this FIS Report in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

The 1% annual chance floodplain boundary corresponds to the boundary of the areas of special flood hazards (e.g. Zones A, AE, V, VE, etc.), and the 0.2% annual chance floodplain boundary corresponds to the boundary of areas of additional flood hazards.

Table 3 lists the flood insurance zones in the unincorporated and incorporated areas of Lawrence County.

Table 3: Flood Zone Designations by Community

Community	Flood Zone(s)
Lawrence County, Unincorporated Areas	A, AE, X
Town of Courtland	A, AE, X
Town of Hillsboro	A, AE, X
City of Moulton	A, AE, X

Table 3: Flood Zone Designations by Community

Community	Flood Zone(s)
Town of North Courtland	A, AE, X
Town of Town Creek	A, X

3.2 Coastal Barrier Resources System

This section is not applicable to this Flood Risk Project.

Table 4: Coastal Barrier Resources System Information

[Not Applicable to this Flood Risk Project]

SECTION 4.0 – AREA STUDIED

4.1 Basin Description

Table 5 contains a description of the characteristics of the HUC-8 sub-basins within which each community falls. The table includes the main flooding sources within each basin, a brief description of the basin, and its drainage area.

Table 5: Basin Characteristics

HUC-8 Sub-Basin Name	HUC-8 Sub-Basin Number	Primary Flooding Source	Description of Affected Area	Drainage Area (square miles)
Pickwick Lake	06030005	Town Creek	Largest watershed within Lawrence County, encompassing approximately half of the county	2,282
Wheeler Lake	06030002	Tennessee River	Affects the eastern third of Lawrence County	2,893

4.2 Principal Flood Problems

Table 6 contains a description of the principal flood problems that have been noted for Lawrence County by flooding source.

Table 6: Principal Flood Problems

Flooding Source	Description of Flood Problems
Big Nance Creek	The greatest flood known since 1891 on Big Nance Creek occurred on March 16, 1973. The USGS gage at Courtland, mile 12.92, had a discharge of 27,200 cubic feet per second (cfs) and a recurrence interval of about 500 years. Streets near the creek were flooded to a depth of up to 5 feet. Approximately 75 buildings in town were flooded. This flood crested 2 feet higher than any other flood since the gage was installed in 1936 (References 2 and 3). The July 1916 flood had a peak discharge of 14,000 cfs and a recurrence interval of 20 years.
Crow Branch	Flood conditions on Crow Branch have been altered by the SCS channelization project completed in 1967. Prior to the completion of the improved channel, floods occurred on Crow Branch in March 1902, July 1916, February 1939, and February 1946, but the most damaging flood of record was on March 12, 1963, which flooded one house and surrounded several others (Reference 4). Flood elevation and discharge data are not available for this flood. A major flood occurred on March 16, 1973, on Crow Branch. Ten houses were evacuated in the Moulton area. The Stardust Mobile Homes factory downstream from Highway 24 suffered damage in excess of $50,000 from water being 2 feet deep in the plant. Bill's Building Supplies was flooded with estimated damage of about $180,000 (Reference 3). No discharges or elevations are available.
Lateral No. 8	No flood information is available for this stream.
Lateral No. 8-14	No flood information is available for this stream.
Lateral No. 11	No flood information is available for this stream.
Lateral No. 12	No flood information is available for this stream.
Muddy Fork	Flood conditions on Muddy Fork have been altered by the SCS channelization project completed in 1967. No flood information is available for this stream.

Table 7 contains information about historic flood elevations in the communities within Lawrence County.

Table 7: Historic Flooding Elevations

[Not Applicable to this Flood Risk Project]

4.3 Non-Levee Flood Protection Measures

Table 8 contains information about non-levee flood protection measures within Lawrence County such as dams, jetties, and or dikes. Levees are addressed in Section 4.4 of this FIS Report.

Table 8: Non-Levee Flood Protection Measures

Table 8: Non-Levee Flood Protection Measures

Flooding Source	Structure Name	Type of Measure	Location	Description of Measure
Almon Branch	N/A	Channel Improvement		Completed in 1967
Big Nance Creek	N/A	Dam		SCS proposed plan in 1962 for nine earthfill dams in upper tributaries to reduce flooding downstream: as of 2009, only limited upstream channel improvement has been completed
Crow Branch	N/A	Channel Improvement		Completed in 1967

4.4 Levees

No levees are located in Lawrence County.

Table 9: Levees

[Not Applicable to this Flood Risk Project]

SECTION 5.0 – ENGINEERING METHODS

For the flooding sources in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude that are expected to be equaled or exceeded at least once on the average during any 10-, 25-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 25-, 50-, 100-, and 500-year floods, have a 10-, 4-, 2-, 1-, and 0.2% annual chance, respectively, of being equaled or exceeded during any year.

Although the recurrence interval represents the long-term, average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 100-year flood (1-percent chance of annual exceedance) during the term of a 30-year mortgage is approximately 26 percent (about 3 in 10); for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

In addition to these flood events, the “1-percent-plus”, or “1%+”, annual chance flood elevation has been modeled for certain flooding sources in this FIS report. While not used for regulatory or insurance purposes, this flood event has been calculated to help illustrate the variability range that

exists between the regulatory 1% annual chance flood elevation and a 1% annual chance elevation that has taken into account an additional amount of uncertainty in the flood discharges (thus, the 1% "plus"). For flooding sources whose discharges were estimated using regression equations, the 1%+ flood elevations are derived by taking the 1% annual chance flood discharges and increasing the modeled discharges by a percentage equal to the average predictive error for the regression equation. For flooding sources with gage- or rainfall-runoff-based discharge estimates, the upper 84-percent confidence limit of the discharges is used to compute the 1%+ flood elevations.

The engineering analyses described here incorporate the results of previously issued Letters of Map Change (LOMCs) listed in Table 27, "Incorporated Letters of Map Change", which include Letters of Map Revision (LOMRs). For more information about LOMRs, refer to Section 6.5, "FIRM Revisions."

5.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak elevation-frequency relationships for floods of the selected recurrence intervals for each flooding source studied. Hydrologic analyses are typically performed at the watershed level. Depending on factors such as watershed size and shape, land use and urbanization, and natural or man-made storage, various models or methodologies may be applied. A summary of the hydrologic methods applied to develop the discharges used in the hydraulic analyses for each stream is provided in Table 13. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation.

A summary of the discharges is provided in Table 10. Frequency Discharge-Drainage Area Curves used to develop the hydrologic models may also be shown in Figure 7 for selected flooding sources. A summary of stillwater elevations developed for non-coastal flooding sources is provided in Table 11. (Coastal stillwater elevations are discussed in Section 5.3 and shown in Table 17.) Stream gage information is provided in Table 12.

Table 10: Summary of Discharges

			Peak Discharge (cfs)					
Flooding Source	Location	Drainage Area (Square Miles)	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	1%+ Annual Chance	0.2% Annual Chance
Almon Branch	Mile 0.0	7.9	1,900	*	3,200	3,700	*	5,600
Almon Branch	Mile 0.97	7.3	1,800	*	2,900	3,600	*	5,200
Almon Branch	Mile 1.4	7.0	1,760	*	2,830	3,380	*	5,000
Big Nance Creek	At Highway 20 Bridge	159	11,500	*	17,500	20,000	*	27,000
Big Nance Creek	Mile 14.95	151	11,000	*	17,000	19,000	*	26,000
Big Nance Creek	At John R. Bridge	117	9,400	*	14,000	16,000	*	22,000
Big Shoal Creek	Approximately 320 feet upstream of the West Flint Creek confluence	19.7	4,170	5,660	6,830	8,020	11,070	10,930
Big Shoal Creek	Approximately 1,920 feet upstream of County Route 87	16.6	3,750	5,100	6,160	7,250	10,000	9,890
Big Shoal Creek	Approximately 110 feet downstream of the Watson Branch confluence	14.4	3,430	4,670	5,650	6,660	9,180	9,110
Big Shoal Creek	Approximately 0.5 mile downstream of County Route 224	12.1	3,080	4,210	5,100	6,010	8,300	8,250
Big Shoal Creek	At the Black Bottom Branch confluence	11.1	2,910	3,980	4,830	5,700	7,860	7,820
*Not calculated for this Flood Risk Project								

Table 10: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	1%+ Annual Chance	0.2% Annual Chance
Big Shoal Creek	Approximately 420 feet upstream of County Route 227	9.3	2,600	3,570	4,340	5,130	7,080	7,060
Big Shoal Creek	Approximately 800 feet upstream of State Route 24	7.8	2,330	3,210	3,900	4,620	6,370	6,370
Big Shoal Creek	Approximately 680 feet downstream of County Route 319	7.3	2,250	3,090	3,760	4,460	6,150	6,150
Big Shoal Creek	Approximately 510 feet upstream of County Route 319	4.7	1,700	2,360	2,880	3,420	4,720	4,760
Big Shoal Creek	Approximately 650 feet downstream of County Route 460	4.1	1,560	2,170	2,650	3,160	4,360	4,400
Big Shoal Creek	Approximately 580 feet upstream of County Route 460	3.4	1,400	1,950	2,390	2,840	3,920	3,970
Big Shoal Creek	Approximately 1,370 feet upstream of County Route 316	3	1,290	1,790	2,200	2,620	3,610	3,660
Big Shoal Creek	Approximately 600 feet upstream of County Route 170	2.6	1,180	1,650	2,030	2,420	3,340	3,390
Big Shoal Creek	Approximately 0.5 miles upstream of County Route 170	2.3	1,080	1,510	1,860	2,220	3,070	3,120

Table 10: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	1%+ Annual Chance	0.2% Annual Chance
Big Shoal Creek	Approximately 0.6 miles upstream of County Route 170	1.6	870	1,210	1,500	1,800	2,480	2,530
Big Shoal Creek	Approximately 880 feet downstream of County Route 214	1.4	810	1,130	1,400	1,680	2,320	2,370
Big Shoal Creek	Approximately 550 feet downstream of County Route 214	1.2	730	1,030	1,270	1,530	2,110	2,170
Big Shoal Creek	Approximately 1,270 feet upstream of County Route 214	1	670	950	1,170	1,410	1,940	2,000
Big Shoal Creek	Approximately 1,400 feet upstream of County Route 214	0.98	640	910	1,120	1,350	1,870	1,920
Crow Branch	Mile 0.0	16.0	3,600	*	5,700	7,200	*	11,200
Crow Branch	Mile 0.9	13.8	3,300	*	5,000	6,300	*	9,500
Crow Branch	Mile 0.68	13.0	3,100	*	4,600	5,800	*	9,000
Crow Branch	Mile 1.10	11.8	2,850	*	4,400	5,400	*	8,300
Crow Branch	Mile 1.62	11.1	2,750	*	4,300	5,300	*	8,100
Crow Branch	Mile 1.94, downstream from Almon Branch	11.0	2,750	*	4,300	5,300	*	8,100
*Not calculated for this Flood Risk Project								

Table 10: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	1%+ Annual Chance	0.2% Annual Chance
Crow Branch	Mile 1.94, upstream from Almon Branch	3.1	1,350	*	1,940	2,200	*	3,030
Crow Branch	Mile 1.24	1.1	470	*	700	820	*	1,120
Elam Creek	Approximately 730 feet upstream of confluence with West Flint Creek	30.9	5,510	7,450	8,940	10,470	14,450	14,170
Elam Creek	Approximately 0.70 miles downstream of County Road 184	27.3	5,100	6,900	8,300	9,720	13,410	13,180
Elam Creek	Approximately 0.44 miles downstream of County Road 184	20.7	4,290	5,820	7,020	8,240	11,370	11,220
Elam Creek	Approximately 300 feet upstream of County Road 157	19.0	4,070	5,530	6,670	7,840	10,810	10,680
Elam Creek	Approximately 0.73 miles upstream of County Road 212	15.9	3,640	4,960	5,990	7,050	9,730	9,640
Elam Creek	Approximately 0.46 miles upstream of County Road 211	13.4	3,270	4,460	5,400	6,370	8,780	8,720
Elam Creek	Approximately 0.58 miles upstream of County Road 211	10.8	2,860	3,920	4,750	5,600	7,730	7,700
*Not calculated for this Flood Risk Project								

Table 10: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	1%+ Annual Chance	0.2% Annual Chance
Elam Creek	Approximately 0.30 miles upstream of Highway 36	9.3	2,600	3,570	4,330	5,120	7,070	7,050
Elam Creek	Approximately 0.94 miles upstream of Highway 36	7.6	2,300	3,170	3,850	4,560	6,290	6,300
Elam Creek	Approximately 440 feet upstream of County Road 92	6.7	2,130	2,940	3,570	4,230	5,840	5,860
Elam Creek	Approximately 1020 feet upstream of County Road 92	4.4	1,650	2,280	2,790	3,310	4,570	4,610
Elam Creek	Approximately 800 feet upstream of County Road 91	4.0	1,550	2,150	2,630	3,120	4,310	4,350
Elam Creek	Approximately 0.33 miles downstream of County Road 90	3.4	1,390	1,930	2,360	2,820	3,890	3,930
Elam Creek	Approximately 670 feet downstream of County Road 90	3.3	1,370	1,900	2,330	2,780	3,830	3,880
Elam Creek	Approximately 270 feet upstream of County Road 90	1.9	970	1,350	1,670	2,000	2,750	2,810
Elam Creek	Approximately 0.719 miles upstream of County Road 90	1.6	870	1,220	1,510	1,800	2,490	2,550

Table 10: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	1%+ Annual Chance	0.2% Annual Chance
Elam Creek	Approximately 0.72 miles upstream of County Road 90	1.0	660	930	1,160	1,390	1,920	1,970
Elam Creek	Approximately 0.96 miles upstream of County Road 90	1.0	640	900	1,120	1,350	1,860	1,910
Lateral No. 8	Mouth	2.3	700	*	1,000	1,150	*	1,500
Lateral No. 8	Mile 0.70	2.1	620	*	900	1,050	*	1,400
Lateral No. 8	Mile 1.25	1.7	580	*	830	960	*	1,250
Lateral No. 11	Mile 0.05	0.64	295	*	440	500	*	650
Lateral No. 11	Mile 0.60	0.48	240	*	350	400	*	520
Lateral No. 12	Mile 0.08	0.21	140	*	205	235	*	300
Lateral No. 12	Mile 0.40	0.17	120	*	180	200	*	260
Lateral No. 12	Mile 0.70	0.05	50	*	80	90	*	115
Lateral No. 8-14	Mile 1.25	1.7	585	*	840	975	*	1,275
Lateral No. 8-14	Mile 1.58	0.95	420	*	600	650	*	840
Lateral No. 8-14	Mile 1.68	0.70	360	*	505	540	*	680
Lateral No. 8-14	Mile 2.20	0.47	240	*	350	400	*	520
Mallard Creek	Approximately 0.5 mile upstream of Mallard Creek Road	38.6	6,330	8,520	10,220	11,940	16,470	16,110
*Not calculated for this Flood Risk Project								

Table 10: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	1%+ Annual Chance	0.2% Annual Chance
Mallard Creek	Approximately 70 feet upstream of the Dry Creek Southwest confluence	33.5	5,790	7,820	9,380	10,970	15,140	14,840
Mallard Creek	Approximately 0.6 mile downstream of Browns Ferry Road	21.4	4,380	5,950	7,170	8,410	11,610	11,450
Mallard Creek	Approximately 1.6 miles downstream of U.S. Route 72	20.2	4,220	5,740	6,920	8,120	11,210	11,060
Mallard Creek	Approximately 1.2 miles downstream of U.S. Route 72	18.2	3,970	5,400	6,510	7,660	10,560	10,440
Mallard Creek	Approximately 0.5 mile downstream of U.S. Route 72	15.1	3,530	4,820	5,820	6,850	9,460	9,370
Mallard Creek	Approximately 630 feet downstream of U.S. Route 72	13.9	3,360	4,580	5,540	6,530	9,000	8,930
Mallard Creek	Approximately 170 feet upstream of the railroad	13	3,220	4,390	5,320	6,270	8,650	8,580
Mcdaniel Creek	Approximately 1,070 feet upstream of the West Flint Creek confluence	13.8	3,330	4,550	5,500	6,480	8,950	8,880

Table 10: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	1%+ Annual Chance	0.2% Annual Chance
Mcdaniel Creek	Approximately 1,080 feet downstream of the County Route 336	12.6	3,150	4,310	5,210	6,150	8,480	8,430
Mcdaniel Creek	Approximately 0.7 mile upstream of the County Route 336	10.6	2,820	3,870	4,690	5,530	7,640	7,600
Mcdaniel Creek	Approximately 0.8 mile upstream of the County Route 336	10.4	2,800	3,830	4,650	5,490	7,570	7,540
Mcdaniel Creek	Approximately 0.9 mile downstream of County Route 203	8.4	2,450	3,370	4,090	4,840	6,680	6,670
Mcdaniel Creek	Approximately 2,860 feet downstream of County Route 203	8.2	2,410	3,310	4,030	4,760	6,570	6,570
Mcdaniel Creek	Approximately 1,840 feet downstream of County Route 203	6.9	2,160	2,980	3,630	4,300	5,930	5,940
Mcdaniel Creek	Approximately 920 feet downstream of County Route 203	6.2	2,020	2,780	3,390	4,020	5,550	5,570
Muddy Fork	Mile 6.80	48.5	7,700	*	12,300	15,000	*	23,300
Muddy Fork	Mile 8.10	32.1	5,700	*	9,200	11,000	*	17,500
Muddy Fork	Mile 8.60	19.6	4,000	*	6,500	8,000	*	12,500
*Not calculated for this Flood Risk Project								

Table 10: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	1%+ Annual Chance	0.2% Annual Chance
Muddy Fork	Mile 10.20	16.0	3,600	*	5,700	7,200	*	11,200
Muddy Fork	Mile 10.83	15.3	3,500	*	5,500	6,850	*	10,400
Schoolhouse Branch	At Mouth	2.1	660	*	950	1,100	*	1,400
Schoolhouse Branch	At River Mile 0.40	1.7	560	*	820	940	*	1,200
Tennessee River	At River Mile 256.6	30,810	370,000	*	430,000	452,000	*	510,000
Tributary to Mallard Creek	Approximately 330 feet upstream of the Mallard Creek confluence	2.8	1,230	1,710	2,100	2,510	3,460	3,510
Tributary to Mallard Creek	Approximately 1,850 feet upstream of the Mallard Creek confluence	2.7	1,210	1,700	2,080	2,480	3,420	3,470
Tributary to Mallard Creek	Approximately 1,810 feet downstream of U.S. Route 72	2.3	1,090	1,520	1,870	2,230	3,080	3,130
Tributary to Mallard Creek	Approximately 1,160 feet upstream of U.S. Route 72	2.1	1,030	1,440	1,770	2,110	2,920	2,970
Tributary to Mallard Creek	Approximately 1,690 feet downstream of Main Street	1.7	920	1,290	1,590	1,910	2,630	2,690
Tributary to Mallard Creek	Approximately 570 feet downstream of Oakdale Avenue	1.5	840	1,170	1,450	1,740	2,390	2,450
*Not calculated for this Flood Risk Project								

Table 10: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	1%+ Annual Chance	0.2% Annual Chance
Tributary to Mallard Creek	Approximately 620 feet upstream of Oakdale Avenue	1.2	740	1,040	1,290	1,550	2,130	2,190
Tributary to Mallard Creek	Approximately 110 feet upstream of Dogwood Road	0.9	610	860	1,060	1,280	1,770	1,820
West Flint Creek	Approximately 0.7 mile downstream of County Road 327	123	9,200	12,100	14,330	16,640	19,890	22,130
West Flint Creek	Approximately 1.0 mile upstream of County Road 327	118	8,900	11,670	13,790	16,000	19,040	21,240
West Flint Creek	Approximately 0.9 mile downstream of County Road 72	108	8,300	10,800	12,730	14,740	17,350	19,490
West Flint Creek	Approximately 3.3 miles upstream of County Route 203	68.3	7,360	9,660	11,430	13,240	16,890	17,580
West Flint Creek	Approximately 3.3 miles upstream of County Route 203	37.3	6,200	8,350	10,010	11,700	16,150	15,800
West Flint Creek	Approximately 980 feet upstream of State Route 157	32.7	5,710	7,710	9,250	10,830	14,950	14,640
West Flint Creek	Approximately 0.4 mile downstream of State Route 36	27.7	5,150	6,970	8,370	9,810	13,540	13,300

Table 10: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	1%+ Annual Chance	0.2% Annual Chance
West Flint Creek	Approximately 0.8 mile downstream of County Route 193	25.4	4,880	6,610	7,950	9,320	12,860	12,650

Figure 7: Frequency Discharge-Drainage Area Curves

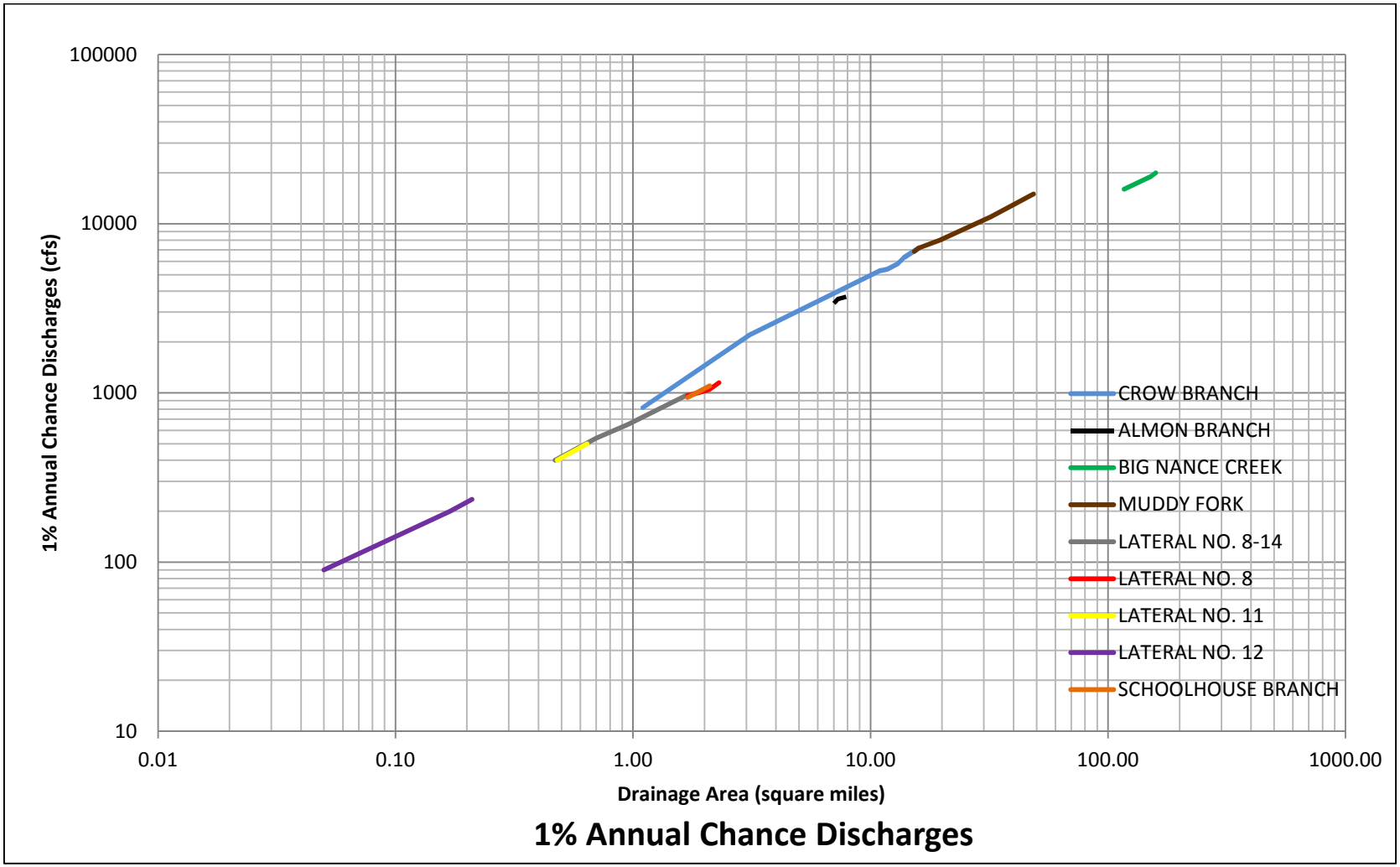


Table 11: Summary of Non-Coastal Stillwater Elevations

[Not Applicable to this Flood Risk Project]

Table 12: Stream Gage Information used to Determine Discharges

Flooding Source	Gage Identifier	Agency that Maintains Gage	Site Name	Drainage Area (Square Miles)	Period of Record	
					From	To
Bear Creek	03591800	USGS	Bear Creek near Hackleburg, Alabama	143	1957	1977
Bear Creek	03591570	TVA	Bear Creek at Posey Mill, Alabama	26.8	1964	1975
Big Huckleberry Creek	03574700	USGS	Big Huckleberry Creek near Belvedere, Tenn.	2.18	1955	1974
Big Nance Creek	03586500	USGS	Big Nance Creek at Courtland, Alabama	161	1936	1977
Bluewater Creek Tributary	03587200	USGS	Bluewater Creek Tributary near Leoma, Tenn.	0.49	1955	1973
Cedar Creek	03592500	USGS	Cedar Creek near Pleasant Site, Alabama	188	1957	1977
Cotaco Creek	03576148	USGS	Cotaco Creek at Florette, Alabama	136	1966	1975
Dorsey Creek	02450200	USGS	Dorsey Creek near Arkadelphia, Alabama	13	1959	1974
Glover Cove Creek	03575340	USGS	Glover Cove Creek near Huntsville, Alabama	3.50	1971	1974
Little Bear Creek	03592300	USGS	Little Bear Creek near Halltown, Alabama	28.2	1958	1977
Little Flat Creek	03599400	USGS	Little Flat Creek near Ralley Hill, Tenn.	0.63	1955	1973

Table 12: Stream Gage Information used to Determine Discharges

Flooding Source	Gage Identifier	Agency that Maintains Gage	Site Name	Drainage Area (Square Miles)	Period of Record	
					From	To
Piney Creek	03576400	USGS	Piney Creek near Athens, Alabama	55.8	1960	1970
Straight Ditch	03574872	USGS	Straight Ditch at Huntsville, Alabama	0.20	1971	1974
Walker Branch	03574796	USGS	Walker Branch near Huntsville, Alabama	0.44	1971	1974
West Flint Creek	03577000	USGS	West Flint Creek near Oakville, Alabama	87.6	01/1946	01/08/1998

5.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals. Base flood elevations on the FIRM represent the elevations shown on the Flood Profiles and in the Floodway Data tables in the FIS Report. Rounded whole-foot elevations may be shown on the FIRM in coastal areas, areas of ponding, and other areas with static base flood elevations. These whole-foot elevations may not exactly reflect the elevations derived from the hydraulic analyses. Flood elevations shown on the FIRM are primarily intended for flood insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS Report in conjunction with the data shown on the FIRM. The hydraulic analyses for this FIS were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

For streams for which hydraulic analyses were based on cross sections, locations of selected cross sections are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway was computed (Section 6.3), selected cross sections are also listed on Table 24, “Floodway Data.”

A summary of the methods used in hydraulic analyses performed for this project is provided in Table 13. Roughness coefficients are provided in Table 14. Roughness coefficients are values representing the frictional resistance water experiences when passing overland or through a channel. They are used in the calculations to determine water surface elevations. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation.

Table 13: Summary of Hydrologic and Hydraulic Analyses

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Almon Branch	At the Crow Branch confluence	Approximately 570 feet upstream of Byler Road	Flood Frequency Equations developed by Espey and Winslow	TVA backwater program		AE	Sections were field surveyed at bridges and other strategic locations and supplemented with valley sections taken by photogrammetric methods at sufficiently close intervals.
Big Nance Creek	Approximately 420 feet upstream of US Route 72	At the downstream side of County Route 150	Log Pearson Type III Flow Frequency Analysis	HEC-2		AE	Sections were field surveyed at bridges and other strategic locations and supplemented with valley sections taken by photogrammetric methods at sufficiently close intervals. Starting water-surface elevations were based on data computed for the Courtland, AL FIS.
Big Shoal Creek	West Flint Creek confluence	Approximately 1,400 feet upstream of County Route 214	2007 State Regression Equations – Region 1	HEC-RAS 4.1.0	8/2014	AE	Hydraulic models incorporated field measured bridge and culvert data.
Crow Branch	At the Muddy Fork confluence	Approximately 0.4 mile upstream of State Route 33	Log Pearson Type III Flow Frequency Analysis; Flood Frequency Equations developed by Espey and Winslow	TVA backwater program		AE	Sections were field surveyed at bridges and other strategic locations and supplemented with valley sections taken by photogrammetric methods at sufficiently close intervals. Starting water-surface elevations were obtained by slope-area calculations using the slope of surveyed floodmarks.
Elam Creek	West Flint Creek confluence	Approximately 0.96 mile upstream of County Route 90	2007 State Regression Equations – Region 1	HEC-RAS 4.1.0	8/2014	AE	Hydraulic models incorporated field measured bridge and culvert data.

Table 13: Summary of Hydrologic and Hydraulic Analyses

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Lateral No. 8	At the Muddy Fork confluence	Approximately 570 feet downstream of State Route33	Log Pearson Type III Flow Frequency Analysis	HEC-2		AE	Sections were field surveyed at bridges and other strategic locations and supplemented with valley sections taken by photogrammetric methods at sufficiently close intervals.
Lateral No. 8-14	Approximately 240 feet downstream of State Route 24	Approximately 0.3 mile upstream of Court Street	Flood Frequency Equations developed by Espey and Winslow	HEC-2		AE	Sections were field surveyed at bridges and other strategic locations and supplemented with valley sections taken by photogrammetric methods at sufficiently close intervals.
Lateral No. 11	At the Lateral No. 8-14 confluence	Approximately 0.4 mile upstream of Main Street	Log Pearson Type III Flow Frequency Analysis	HEC-2		AE	Sections were field surveyed at bridges and other strategic locations and supplemented with valley sections taken by photogrammetric methods at sufficiently close intervals.
Lateral No. 12	At the Lateral No. 8-14 confluence	At the downstream side of Edna Street	Log Pearson Type III Flow Frequency Analysis	HEC-2		AE	Sections were field surveyed at bridges and other strategic locations and supplemented with valley sections taken by photogrammetric methods at sufficiently close intervals.
Mallard Creek	Tennessee River confluence	Approximately 80 feet downstream of U.S. Route 72	2007 State Regression Equations – Region 1	HEC-RAS 4.1.0	8/2014	AE	Hydraulic models incorporated field measured bridge and culvert data.
McDaniel Creek	West Flint Creek confluence	Approximately 920 feet downstream of County Route 203	2007 State Regression Equations – Region 1	HEC-RAS 4.1.0	8/2014	AE	Hydraulic models incorporated field measured bridge and culvert data.

Table 13: Summary of Hydrologic and Hydraulic Analyses

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Muddy Fork	Approximately 0.7 mile downstream of County Route 234	Approximately 0.4 mile downstream of County Route 167	Log Pearson Type III Flow Frequency Analysis; Flood Frequency Equations developed by Espey and Winslow	HEC-2		AE	Sections were field surveyed at bridges and other strategic locations and supplemented with valley sections taken by photogrammetric methods at sufficiently close intervals. Starting water-surface elevations were obtained by slope-area calculations using the slope of surveyed floodmarks.
Schoolhouse Branch	At the Big Nance Creek confluence	Approximately 1,790 feet upstream of County Route 150	Log Pearson Type III Flow Frequency Analysis	HEC-2		AE	Sections were field surveyed at bridges and other strategic locations and supplemented with valley sections taken by photogrammetric methods at sufficiently close intervals.
Tennessee River	At the northwest county boundary	At the northeast county boundary	Discharge-frequency analysis	HEC-RAS 4.1.0	8/2014	AE	
Tributary to Mallard Creek	Mallard Creek confluence	At the downstream side of Dogwood Road	2007 State Regression Equations – Region 1	HEC-RAS 4.1.0	8/2014	AE	Hydraulic models incorporated field measured bridge and culvert data.
Various streams in Lawrence County (all within HUC-8 06030002)	Various	Various	2007 State Regression Equations – Region 1; 2004 State Small Rural Streams	HEC-RAS 4.1.0	8/2014	A	
Various streams in Lawrence County (all within HUC-8 06030005)	Various	Various	Log Pearson Type III Flow Frequency Analysis	HEC-2		A	
West Flint Creek	Flint Creek confluence	Approximately 1.5 miles upstream of State Route 36	2007 State Regression Equations – Region 1	HEC-RAS 4.1.0	8/2014	AE	Gage 03577000 was used in hydrologic analysis. Hydraulic models incorporated field measured bridge and culvert data.

Table 14: Roughness Coefficients

Flooding Source	Channel “n”	Overbank “n”
Almon Branch	0.037-0.050	0.060-0.140
Big Nance Creek	0.020-0.088	0.045-0.211
Big Shoal Creek	0.045-0.050	0.08-0.12
Crow Branch	0.035	0.060-0.140
Elam Creek	0.045-0.055	0.07-0.13
Lateral No. 8	0.030-0.050	0.060-0.150
Lateral No. 8-14	0.030-0.045	0.06-0.10
Lateral No. 11	0.035-0.045	0.08-0.12
Lateral No. 12	0.035	0.07-0.08
Mallard Creek	0.030-0.045	0.06-0.12
McDaniel Creek	0.040-0.050	0.07-0.12
Muddy Fork	0.032-0.040	0.060-0.120
Schoolhouse Branch	0.020-0.035	0.080-0.150
Tennessee River	0.020-0.029	0.020-0.150
Tributary to Mallard Creek	0.045	0.07-0.12
West Flint Creek	0.045	0.08-0.12

5.3 Coastal Analyses

This section is not applicable to this Flood Risk Project.

Table 15: Summary of Coastal Analyses

[Not Applicable to this Flood Risk Project]

5.3.1 Total Stillwater Elevations

This section is not applicable to this Flood Risk Project.

Figure 8: 1% Annual Chance Total Stillwater Elevations for Coastal Areas

[Not Applicable to this Flood Risk Project]

Table 16: Tide Gage Analysis Specifics

[Not Applicable to this Flood Risk Project]

5.3.2 Waves

This section is not applicable to this Flood Risk Project.

5.3.3 Coastal Erosion

This section is not applicable to this Flood Risk Project.

5.3.4 Wave Hazard Analyses

This section is not applicable to this Flood Risk Project.

Table 17: Coastal Transect Parameters

[Not Applicable to this Flood Risk Project]

Figure 9: Transect Location Map

[Not Applicable to this Flood Risk Project]

5.4 Alluvial Fan Analyses

This section is not applicable to this Flood Risk Project.

Table 18: Summary of Alluvial Fan Analyses

[Not Applicable to this Flood Risk Project]

Table 19: Results of Alluvial Fan Analyses

[Not Applicable to this Flood Risk Project]

SECTION 6.0 – MAPPING METHODS

6.1 Vertical and Horizontal Control

All FIS Reports and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum used for newly created or revised FIS Reports and FIRMs was the National Geodetic Vertical Datum of 1929 (NGVD29). With the completion of the North American Vertical Datum of 1988 (NAVD88), many FIS Reports and FIRMs are now prepared using NAVD88 as the referenced vertical datum.

Flood elevations shown in this FIS Report and on the FIRMs are referenced to NAVD88. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between NGVD29 and NAVD88 or other datum conversion, visit the National Geodetic Survey website at www.ngs.noaa.gov, or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

Temporary vertical monuments are often established during the preparation of a flood hazard analysis for the purpose of establishing local vertical control. Although these monuments are not shown on the FIRM, they may be found in the archived project documentation associated with the FIS Report and the FIRMs for this community. Interested individuals may contact FEMA to access these data.

To obtain current elevation, description, and/or location information for benchmarks in the area, please contact information services Branch of the NGS at (301) 713-3242, or visit their website at www.ngs.noaa.gov.

The datum conversion locations and values that were calculated for Lawrence County are provided in Table 20.

Table 20: Countywide Vertical Datum Conversion

Average Conversion from NGVD29 to NAVD88 = 0.12 feet

Table 21: Stream-Based Vertical Datum Conversion

[Not Applicable to this Flood Risk Project]

6.2 Base Map

The FIRMs and FIS Report for this project have been produced in a digital format. The flood hazard information was converted to a Geographic Information System (GIS) format that meets FEMA's FIRM database specifications and geographic information standards. This information is provided in a digital format so that it can be incorporated into a local GIS and be accessed more easily by the community. The FIRM Database includes most of the tabular information contained in the FIS Report in such a way that the data can be associated with pertinent spatial features. For example, the information contained in the Floodway Data table and Flood Profiles can be linked to the cross sections that are shown on the FIRMs. Additional information about the FIRM Database and its contents can be found in FEMA's *Guidelines and Standards for Flood Risk Analysis and Mapping*, http://www.fema.gov/guidelines-and-standards-flood-risk-analysis-and-mapping.

Base map information shown on the FIRM was derived from the sources described in Table 22.

Table 22: Base Map Sources

Data Type	Data Provider	Data Date	Data Scale	Data Description
Hydrography	USGS	2011		
Flood Hazard Information	FEMA	2011		Effective DFIRM of Lawrence County
County Boundary Data	State of AL	2011		County boundaries for the State of Alabama
Municipal Boundary	Community Supplied	2011		Municipal boundaries for each community within the study area
Digital Orthophoto	Community Supplied	2011		Digital Orthophoto Quadrangles were used
Transportation Data	Community Supplied	2011		Roads and railroads
Elevation Data	Community & Federal Supplied	2012		Light Detection and Ranging data (LiDAR)
Effective Base Map	Spatial Net, Inc., Huntsville, AL	2005		

6.3 Floodplain and Floodway Delineation

The FIRM shows tints, screens, and symbols to indicate floodplains and floodways as well as the locations of selected cross sections used in the hydraulic analyses and floodway computations.

For riverine flooding sources, the mapped floodplain boundaries shown on the FIRM have been delineated using the flood elevations determined at each cross section; between cross sections, the boundaries were interpolated using the topographic elevation data described in Table 23.

In cases where the 1% and 0.2% annual chance floodplain boundaries are close together, only the 1% annual chance floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

The floodway widths presented in this FIS Report and on the FIRM were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. Table 2 indicates the flooding sources for which floodways have been determined. The results of the floodway computations for those flooding sources have been tabulated for selected cross sections and are shown in Table 24, “Floodway Data.”

Certain flooding sources may have been studied for which there is a need to report the 1% annual chance flood elevations at selected cross sections because a published Flood Profile does not exist

in this FIS Report. These streams may have also been studied using methods to determine non-encroachment zones rather than floodways. For these flooding sources, the 1% annual chance floodplain boundaries have been delineated using the flood elevations determined at each cross section; between cross sections, the boundaries were interpolated using the topographic elevation data described in Table 23. All topographic data used for modeling or mapping has been converted as necessary to NAVD 88. The 1% annual chance elevations for selected cross sections along these flooding sources, along with their non-encroachment widths, if calculated, are shown in Table 25, "Flood Hazard and Non-Encroachment Data for Selected Streams."

Table 23: Summary of Topographic Elevation Data used in Mapping

Community	Flooding Source	Source for Topographic Elevation Data			
		Description	Scale	Contour Interval	Citation
Lawrence County	All within HUC-8 06030002	Light Detection and Ranging data (LiDAR)		2 ft	2012
Lawrence County (Effective studies)	HUC-8 06030005	USGS topographic maps	1:24,000	10 ft	2009
Lawrence County (Effective studies)	HUC-8 06030005	USGS topographic maps	1:24,000	20 ft	2009

BFEs shown at cross sections on the FIRM represent the 1% annual chance water surface elevations shown on the Flood Profiles and in the Floodway Data tables in the FIS Report.

Table 24: Floodway Data

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	0.32	250	1,000	3.7	623.2	623.2	623.8	0.6
B	0.39	250	1,525	2.4	625.7	625.7	626.0	0.3
C	0.59	500	2,195	1.7	626.0	626.0	626.7	0.7
D	0.76	560	1,895	1.9	627.1	627.1	627.8	0.7
E	0.93	400	2,045	1.8	629.7	629.7	630.5	0.8

[1]Miles above confluence with Crow Branch

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAWRENCE COUNTY, ALABAMA

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: ALMON BRANCH

Table 24: Floodway Data

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	11.90	450	4,421	4.5	559.7	559.7	560.5	0.8
B	12.44	1,300	10,029	2.0	560.4	560.4	561.3	0.9
C	12.69	1,300	10,913	1.8	560.6	560.6	561.6	1.0
D	12.92	1,200	9,335	2.1	561.2	561.2	562.2	1.0
E	13.05	900	8,924	2.2	562.0	562.0	562.9	0.9
F	13.50	1,000	8,008	2.5	563.1	563.1	563.9	0.8
G	13.90	800	6,827	2.9	563.9	563.9	564.9	1.0
H	14.95	1,000	4,078	4.7	566.8	566.8	567.6	0.8
I	15.53	150	2,680	7.0	568.8	568.8	569.3	0.5

[1]Miles above confluence with Tennessee River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAWRENCE COUNTY, ALABAMA

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: BIG NANCE CREEK

Table 24: Floodway Data

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	1.05	370[2]	2,628	2.1	616.5	616.5	617.0	0.5
B	1.36	550	2,759	1.9	617.2	617.2	617.9	0.7
C	1.62	450	1,763	3.0	618.6	618.6	619.6	1.0
D	1.93	510	1,955	3.0	620.9	620.9	621.9	1.0
E	2.11	870	3,795	1.5	622.6	622.6	623.3	0.7
F	2.30	250	920	2.2	623.2	623.2	623.8	0.6
G	2.37	320	1,905	1.0	626.8	626.8	627.3	0.5
H	2.58	190	1,020	1.8	626.8	626.8	627.4	0.6
I	2.77	200	1,215	1.4	629.2	629.2	629.6	0.4
J	2.90	340	1,795	0.8	629.3	629.3	630.0	0.7
K	3.10	250	985	1.3	629.4	629.4	630.1	0.7
L	3.29	210	820	1.3	629.9	629.9	630.5	0.6
M	3.48	160	230	3.8	631.5	631.5	631.9	0.4
N	3.71	130	530	1.6	634.9	634.9	635.2	0.3

[1]Miles above confluence with Muddy Fork
[2]Measured perpendicular to flow

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAWRENCE COUNTY, ALABAMA

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: CROW BRANCH

Table 24: Floodway Data

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	0.30	50	204	5.4	611.9	611.9	612.4	0.5
B	0.68	40	201	5.2	616.0	616.0	616.2	0.2
C	0.76	80	283	3.7	617.2	617.2	617.8	0.6
D	0.90	100	347	2.9	618.2	618.2	619.0	0.8

[1]Miles above confluence with Muddy Fork

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAWRENCE COUNTY, ALABAMA

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: LATERAL NO. 8

Table 24: Floodway Data

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	1.25	60	210	4.6	620.9	620.9	621.9	1.0
B	1.44	60	235	3.0	625.3	625.3	625.9	0.6
C	1.48	70	265	2.7	625.7	625.7	626.7	1.0
D	1.68	160	290	1.9	629.1	629.1	629.9	0.8
E	1.90	90	185	2.7	634.7	634.7	635.4	0.7
F	1.97	120	250	1.9	636.0	636.0	636.8	0.8
G	2.02	100	610	0.7	*	640.3	641.3	1.0
H	2.19	50	85	4.8	641.7	641.7	642.0	0.3
I	2.37	50	105	3.2	646.1	646.1	646.2	0.1

[1]Miles above confluence with Lateral No. 8

*Data not available

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAWRENCE COUNTY, ALABAMA

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: LATERAL NO. 8-14

Table 24: Floodway Data

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	0.05	140	265	1.9	622.9	622.9	623.9	1.0
B	0.14	150	435	1.1	626.9	626.9	627.2	0.3
C	0.56	110	275	1.5	634.5	634.5	635.3	0.8

[1]Feet above confluence with Lateral No. 8

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAWRENCE COUNTY, ALABAMA

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: LATERAL NO. 11

Table 24: Floodway Data

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	0.03	120	255	1.0	627.6	627.6	628.6	1.0
B	0.08	50	60	3.8	627.8	627.8	628.6	0.8
C	0.31	60	150	1.4	636.9	636.9	637.3	0.4
D	0.60	50	90	1.4	643.9	643.9	643.9	0.0
E	0.67	60	35	3.0	644.9	644.9	645.0	0.1

[1]Miles above confluence with Lateral No. 8-14

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAWRENCE COUNTY, ALABAMA

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: LATERAL NO. 12

Table 24: Floodway Data

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	6.87	350	2,809	5.3	593.4	593.4	594.4	1.0
B	7.31	900	7,765	1.7	596.1	596.1	596.8	0.7
C	7.57	1,000	6,534	1.9	596.5	596.5	597.4	0.9
D	8.15	900	5,413	2.0	598.0	598.0	599.0	1.0
E	9.52	700	3,771	2.0	604.8	604.8	605.5	0.7
F	10.18	500	2,119	3.3	608.4	608.4	609.2	0.8
G	10.83	800	3,661	1.9	611.6	611.6	612.6	1.0

[1]Miles above confluence with Big Nance Creek

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAWRENCE COUNTY, ALABAMA

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: MUDDY FORK

Table 24: Floodway Data

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	0.05	85	*	*	563.5	552.6[2]	*	*
B	0.12	200	*	*	563.5	559.1[2]	*	*
C	0.20	300	*	*	563.5	560.9[2]	*	*
D	0.40	300	*	*	563.5	561.5[2]	*	*

[1]Miles above confluence with Big Nance Creek

[2]Water Surface Elevations Without Considering Backwater from Big Nance Creek

*Data not available

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAWRENCE COUNTY, ALABAMA

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: SCHOOLHOUSE BRANCH

Non-encroachment areas may be delineated where it is not possible to delineate floodways because specific channel profiles with bridge and culvert geometry were not developed. Any non-encroachment determinations for this Flood Risk Project have been tabulated for selected cross sections and are shown in Table 25. The non-encroachment width indicates the measured distance left and right (looking downstream) from the mapped center of the stream to the non-encroachment boundary based on a surcharge of 1.0 foot or less.

Table 25: Flood Hazard and Non-Encroachment Data for Selected Streams

Flooding Source	Cross Section	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Big Shoal Creek	123	123	8020	604.2[2]	40	40
Big Shoal Creek	794	794	7250	604.2[2]	30	70
Big Shoal Creek	1728	1,728	7250	604.2[2]	450	80
Big Shoal Creek	2647	2,647	7250	604.2[2]	150	620
Big Shoal Creek	3541	3,541	7250	604.2[2]	610	40
Big Shoal Creek	4992	4,992	7250	604.2[2]	60	650
Big Shoal Creek	5484	5,484	7250	604.2[2]	60	640
Big Shoal Creek	6126	6,126	7250	604.2[2]	120	330
Big Shoal Creek	6642	6,642	7250	604.2[2]	270	210
Big Shoal Creek	7059	7,059	7250	604.2[2]	320	150
Big Shoal Creek	7621	7,621	7250	604.2[2]	40	80
Big Shoal Creek	7710	7,710	7250	604.2[2]	40	90
Big Shoal Creek	8740	8,740	7250	604.2[2]	450	30
Big Shoal Creek	9477	9,477	7250	604.2[2]	80	380
Big Shoal Creek	10202	10,202	6660	604.2[2]	70	370
Big Shoal Creek	11084	11,084	6660	604.2[2]	790	60
Big Shoal Creek	11933	11,933	6660	604.2[2]	410	130
Big Shoal Creek	12588	12,588	6660	604.2[2]	350	60
Big Shoal Creek	13534	13,534	6660	604.2[2]	190	280
Big Shoal Creek	14368	14,368	6660	604.2[2]	100	130
Big Shoal Creek	14523	14,523	6660	604.8	90	90
Big Shoal Creek	15008	15,008	6660	605.1	120	230
Big Shoal Creek	15426	15,426	6660	605.3	130	140
Big Shoal Creek	16386	16,386	6660	606.6	370	30
Big Shoal Creek	17220	17,220	6660	607.1	100	160
Big Shoal Creek	18250	18,250	6660	608.0	80	200
Big Shoal Creek	18786	18,786	6010	608.4	100	40

Table 25: Flood Hazard and Non-Encroachment Data for Selected Streams

Flooding Source	Cross Section	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Big Shoal Creek	19388	19,388	6010	609.6	50	40
Big Shoal Creek	19935	19,935	6010	611.9	30	40
Big Shoal Creek	20890	20,890	6010	613.7	50	70
Big Shoal Creek	21365	21,365	6010	614.3	70	30
Big Shoal Creek	22089	22,089	6010	615.3	50	70
Big Shoal Creek	22836	22,836	6010	616.1	70	40
Big Shoal Creek	23365	23,365	6010	616.8	50	40
Big Shoal Creek	23597	23,597	6010	617.8	50	60
Big Shoal Creek	23663	23,663	6010	617.8	50	50
Big Shoal Creek	23836	23,836	6010	618.2	60	60
Big Shoal Creek	24250	24,250	6010	618.5	50	60
Big Shoal Creek	25302	25,302	6010	620.1	40	60
Big Shoal Creek	26105	26,105	6010	621.6	80	40
Big Shoal Creek	26760	26,760	6010	623.3	40	250
Big Shoal Creek	27334	27,334	5700	624.2	190	50
Big Shoal Creek	27894	27,894	5700	624.3	50	70
Big Shoal Creek	28366	28,366	5700	625.6	30	120
Big Shoal Creek	28708	28,708	5700	626.4	110	50
Big Shoal Creek	29225	29,225	5700	627.0	40	50
Big Shoal Creek	29588	29,588	5700	628.5	30	70
Big Shoal Creek	29908	29,908	5700	630.7	60	40
Big Shoal Creek	30005	30,005	5700	635.4	70	70
Big Shoal Creek	30311	30,311	5700	636.0	40	150
Big Shoal Creek	30656	30,656	5700	638.2	100	90
Big Shoal Creek	30963	30,963	5700	639.0	130	110
Big Shoal Creek	31619	31,619	5700	639.8	500	60
Big Shoal Creek	32029	32,029	5700	640.0	620	160
Big Shoal Creek	32338	32,338	5130	640.1	460	550
Big Shoal Creek	33027	33,027	5130	640.2	130	720
Big Shoal Creek	33643	33,643	5130	640.3	50	730

Table 25: Flood Hazard and Non-Encroachment Data for Selected Streams

Flooding Source	Cross Section	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Big Shoal Creek	33744	33,744	5130	641.4	60	480
Big Shoal Creek	34048	34,048	5130	641.5	80	340
Big Shoal Creek	34537	34,537	4620	641.6	80	320
Big Shoal Creek	35012	35,012	4620	641.8	120	310
Big Shoal Creek	36112	36,112	4620	642.5	370	30
Big Shoal Creek	36615	36,615	4620	643.2	300	200
Big Shoal Creek	37366	37,366	4620	643.8	110	350
Big Shoal Creek	38136	38,136	4620	644.3	30	520
Big Shoal Creek	38806	38,806	4620	644.7	40	580
Big Shoal Creek	39615	39,615	4620	645.1	20	730
Big Shoal Creek	40189	40,189	4620	645.3	90	470
Big Shoal Creek	41175	41,175	4620	646.0	60	620
Big Shoal Creek	42588	42,588	4620	646.6	300	290
Big Shoal Creek	43102	43,102	4620	647.1	250	270
Big Shoal Creek	44035	44,035	4620	648.4	70	60
Big Shoal Creek	44331	44,331	4620	650.9	70	60
Big Shoal Creek	44837	44,837	4620	651.5	140	310
Big Shoal Creek	45859	45,859	4460	652.0	470	150
Big Shoal Creek	46938	46,938	4460	652.3	100	450
Big Shoal Creek	47787	47,787	4460	652.5	60	590
Big Shoal Creek	48094	48,094	4460	652.8	20	600
Big Shoal Creek	48805	48,805	3420	653.3	130	400
Big Shoal Creek	49233	49,233	3420	653.6	40	490
Big Shoal Creek	49307	49,307	3420	653.7	40	480
Big Shoal Creek	49727	49,727	3420	654.2	40	360
Big Shoal Creek	50643	50,643	3160	655.4	70	310
Big Shoal Creek	51426	51,426	3160	656.3	60	550
Big Shoal Creek	52867	52,867	3160	657.5	100	270
Big Shoal Creek	53532	53,532	3160	659.0	140	240
Big Shoal Creek	54146	54,146	3160	660.6	30	70

Table 25: Flood Hazard and Non-Encroachment Data for Selected Streams

Flooding Source	Cross Section	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Big Shoal Creek	54554	54,554	3160	662.3	140	40
Big Shoal Creek	54644	54,644	3160	662.7	170	40
Big Shoal Creek	54829	54,829	3160	662.9	180	70
Big Shoal Creek	55302	55,302	3160	664.6	110	30
Big Shoal Creek	55591	55,591	3160	665.6	90	20
Big Shoal Creek	55879	55,879	3160	666.3	70	90
Big Shoal Creek	56051	56,051	3160	666.6	50	110
Big Shoal Creek	56277	56,277	3160	667.1	40	100
Big Shoal Creek	56331	56,331	3160	667.2	40	110
Big Shoal Creek	56478	56,478	3160	667.4	40	130
Big Shoal Creek	56642	56,642	3160	667.7	30	150
Big Shoal Creek	56915	56,915	3160	668.1	80	140
Big Shoal Creek	57092	57,092	2840	668.3	110	190
Big Shoal Creek	57499	57,499	2840	668.9	70	70
Big Shoal Creek	57646	57,646	2840	672.9	50	50
Big Shoal Creek	58044	58,044	2840	673.2	110	130
Big Shoal Creek	58798	58,798	2620	673.2	160	250
Big Shoal Creek	59366	59,366	2620	673.5	350	40
Big Shoal Creek	59733	59,733	2620	673.7	250	40
Big Shoal Creek	60050	60,050	2620	674.1	250	20
Big Shoal Creek	60293	60,293	2620	674.5	200	20
Big Shoal Creek	60565	60,565	2620	675.2	130	50
Big Shoal Creek	60905	60,905	2620	676.2	70	30
Big Shoal Creek	60996	60,996	2620	677.5	80	30
Big Shoal Creek	61197	61,197	2620	677.8	30	70
Big Shoal Creek	61658	61,658	2620	679.6	70	40
Big Shoal Creek	61947	61,947	2620	680.2	40	60
Big Shoal Creek	62289	62,289	2620	681.1	40	120
Big Shoal Creek	62533	62,533	2420	681.4	60	100
Big Shoal Creek	62885	62,885	2420	681.7	60	50

Table 25: Flood Hazard and Non-Encroachment Data for Selected Streams

Flooding Source	Cross Section	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Big Shoal Creek	63246	63,246	2420	682.2	30	170
Big Shoal Creek	63665	63,665	2420	682.8	100	90
Big Shoal Creek	64156	64,156	2420	683.6	60	120
Big Shoal Creek	64503	64,503	2420	685.1	30	30
Big Shoal Creek	64610	64,610	2420	696.8	30	150
Big Shoal Creek	65044	65,044	2420	696.8	20	90
Big Shoal Creek	65533	65,533	2220	697.0	70	40
Big Shoal Creek	66127	66,127	2220	697.3	30	80
Big Shoal Creek	66883	66,883	2220	698.0	100	100
Big Shoal Creek	67226	67,226	2220	698.7	70	30
Big Shoal Creek	67512	67,512	1800	700.2	130	50
Big Shoal Creek	67870	67,870	1800	700.7	30	140
Big Shoal Creek	68214	68,214	1680	701.7	50	20
Big Shoal Creek	68610	68,610	1680	703.4	40	20
Big Shoal Creek	68927	68,927	1680	705.0	20	50
Big Shoal Creek	69198	69,198	1680	706.1	40	20
Big Shoal Creek	69481	69,481	1680	707.6	20	40
Big Shoal Creek	69778	69,778	1680	709.0	30	50
Big Shoal Creek	69930	69,930	1680	709.3	30	20
Big Shoal Creek	70167	70,167	1680	710.9	20	30
Big Shoal Creek	70353	70,353	1530	712.7	30	20
Big Shoal Creek	70536	70,536	1530	713.4	40	20
Big Shoal Creek	70655	70,655	1410	713.7	60	20
Big Shoal Creek	70847	70,847	1410	714.1	90	40
Big Shoal Creek	70955	70,955	1410	714.2	20	30
Big Shoal Creek	71011	71,011	1410	716.9	30	30
Big Shoal Creek	71053	71,053	1410	717.1	30	30
Big Shoal Creek	71087	71,087	1410	717.0	20	20
Big Shoal Creek	71177	71,177	1410	722.6	20	20
Big Shoal Creek	71392	71,392	1410	722.7	60	70

Table 25: Flood Hazard and Non-Encroachment Data for Selected Streams

Flooding Source	Cross Section	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Big Shoal Creek	71746	71,746	1410	722.7	70	80
Big Shoal Creek	72058	72,058	1410	722.7	70	70
Big Shoal Creek	72368	72,368	1410	722.8	60	60
Big Shoal Creek	72528	72,528	1350	722.9	80	40
Elam Creek	205	205	10470	608.3	1050	60
Elam Creek	3201	3,201	9720	608.9	60	1010
Elam Creek	4893	4,893	9720	609.0	120	150
Elam Creek	4986	4,986	9720	611.0	130	150
Elam Creek	5645	5,645	9720	612.5	650	40
Elam Creek	7540	7,540	9720	613.7	280	30
Elam Creek	9063	9,063	9720	614.8	40	430
Elam Creek	10546	10,546	8240	615.1	30	770
Elam Creek	12523	12,523	7840	615.5	700	100
Elam Creek	14230	14,230	7840	617.2	130	120
Elam Creek	14311	14,311	7840	617.3	160	110
Elam Creek	14708	14,708	7840	618.3	280	520
Elam Creek	15261	15,261	7840	618.6	150	370
Elam Creek	17210	17,210	7840	620.9	80	450
Elam Creek	18481	18,481	7840	622.1	120	240
Elam Creek	20913	20,913	7840	623.1	760	40
Elam Creek	22718	22,718	7840	623.8	130	130
Elam Creek	22995	22,995	7840	625.9	130	130
Elam Creek	23236	23,236	7840	626.6	310	190
Elam Creek	23312	23,312	7050	626.6	300	250
Elam Creek	23879	23,879	7050	626.9	270	1120
Elam Creek	23968	23,968	7050	627.0	260	1130
Elam Creek	24371	24,371	7050	627.5	200	830
Elam Creek	25337	25,337	7050	629.9	180	190
Elam Creek	27832	27,832	7050	633.0	170	290
Elam Creek	29450	29,450	6360	633.7	780	240

Table 25: Flood Hazard and Non-Encroachment Data for Selected Streams

Flooding Source	Cross Section	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Elam Creek	31046	31,046	6360	635.1	210	240
Elam Creek	31959	31,959	6360	637.1	520	40
Elam Creek	33057	33,057	6360	638.5	220	490
Elam Creek	33387	33,387	6360	638.7	560	210
Elam Creek	33455	33,455	6360	638.8	600	210
Elam Creek	33587	33,587	6360	639.1	650	110
Elam Creek	35975	35,975	5600	640.8	560	400
Elam Creek	37709	37,709	5120	641.9	100	800
Elam Creek	39570	39,570	5120	644.1	100	500
Elam Creek	41105	41,105	5120	645.9	250	460
Elam Creek	43127	43,127	5120	647.3	360	400
Elam Creek	45338	45,338	5120	651.5	70	240
Elam Creek	45411	45,411	5120	656.0	50	250
Elam Creek	46911	46,911	5120	656.1	80	760
Elam Creek	50572	50,572	4560	657.6	500	300
Elam Creek	51937	51,937	4230	659.0	570	390
Elam Creek	53646	53,646	4230	661.0	510	190
Elam Creek	55156	55,156	4230	663.7	600	160
Elam Creek	56199	56,199	4230	665.2	30	450
Elam Creek	57447	57,447	4230	666.1	40	940
Elam Creek	57563	57,563	4230	666.3	40	940
Elam Creek	57928	57,928	4230	666.9	150	850
Elam Creek	58480	58,480	3310	668.0	160	740
Elam Creek	59393	59,393	3120	670.3	20	420
Elam Creek	59858	59,858	3120	671.1	30	490
Elam Creek	60425	60,425	3120	672.5	30	280
Elam Creek	60543	60,543	3120	674.9	30	280
Elam Creek	60753	60,753	3120	675.2	20	570
Elam Creek	61494	61,494	2820	675.7	60	500
Elam Creek	62555	62,555	2820	676.8	300	180

Table 25: Flood Hazard and Non-Encroachment Data for Selected Streams

Flooding Source	Cross Section	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Elam Creek	64639	64,639	2820	681.2	350	350
Elam Creek	66304	66,304	2820	684.9	230	100
Elam Creek	66893	66,893	2780	687.5	230	170
Elam Creek	67507	67,507	2000	689.3	90	160
Elam Creek	68069	68,069	2000	690.7	20	280
Elam Creek	68140	68,140	2000	692.8	20	280
Elam Creek	68354	68,354	2000	693.1	30	470
Elam Creek	69049	69,049	1800	694.2	210	120
Elam Creek	69752	69,752	1800	697.8	140	30
Elam Creek	70251	70,251	1800	699.4	170	20
Elam Creek	71275	71,275	1800	703.6	240	10
Elam Creek	71833	71,833	1390	706.2	80	50
Elam Creek	72327	72,327	1350	709.6	20	40
Elam Creek	72607	72,607	1350	711.2	20	60
Elam Creek	72850	72,850	1350	713.0	50	70
Elam Creek	73200	73,200	1350	716.2	70	80
Mallard Creek	3600	3,600	11940	555.7	890	910
Mallard Creek	6806	6,806	11940	556.0	990	1030
Mallard Creek	9102	9,102	11940	556.2	810	810
Mallard Creek	9999	9,999	11940	556.4	610	610
Mallard Creek	10177	10,177	11940	558.6	550	550
Mallard Creek	10539	10,539	11940	558.9	650	520
Mallard Creek	11416	11,416	11940	558.9	390	390
Mallard Creek	12152	12,152	11940	559.0	510	510
Mallard Creek	13642	13,642	10970	559.2	450	1030
Mallard Creek	15554	15,554	10970	561.9	440	760
Mallard Creek	16647	16,647	8410	563.3	710	400
Mallard Creek	17555	17,555	8410	564.2	810	20
Mallard Creek	20460	20,460	8410	567.1	410	520
Mallard Creek	22785	22,785	8120	568.0	210	1400

Table 25: Flood Hazard and Non-Encroachment Data for Selected Streams

Flooding Source	Cross Section	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Mallard Creek	23841	23,841	8120	568.4	200	1920
Mallard Creek	23952	23,952	8120	568.4	180	1980
Mallard Creek	24704	24,704	8120	569.3	20	1500
Mallard Creek	27512	27,512	8120	573.8	1060	500
Mallard Creek	29698	29,698	8120	576.5	750	300
Mallard Creek	32014	32,014	8120	580.2	560	160
Mallard Creek	33265	33,265	8120	581.4	540	240
Mallard Creek	34966	34,966	7660	582.8	600	220
Mallard Creek	37091	37,091	6850	585.8	330	260
Mallard Creek	38797	38,797	6850	588.7	440	110
Mallard Creek	40351	40,351	6520	590.7	420	460
Mallard Creek	41432	41,432	6260	592.6	530	140
McDaniel Creek	1032	1,032	6480	606.6[2]	460	50
McDaniel Creek	2581	2,581	6150	606.6[2]	680	40
McDaniel Creek	3722	3,722	6150	606.6[2]	660	60
McDaniel Creek	5145	5,145	6150	606.6[2]	500	200
McDaniel Creek	6503	6,503	6150	606.6[2]	30	840
McDaniel Creek	6595	6,595	6150	606.6[2]	30	860
McDaniel Creek	7059	7,059	6150	606.6[2]	30	770
McDaniel Creek	8553	8,553	5530	606.6[2]	20	720
McDaniel Creek	9658	9,658	5530	606.6[2]	260	460
McDaniel Creek	10497	10,497	5490	606.6[2]	410	230
McDaniel Creek	11628	11,628	4840	608.5	500	110
McDaniel Creek	13016	13,016	4760	610.9	60	450
McDaniel Creek	14699	14,699	4300	613.6	420	90
McDaniel Creek	16710	16,710	4020	617.2	160	350
Tributary to Mallard Creek	189	189	2510	584.3	220	40
Tributary to Mallard Creek	1413	1,413	2480	587.0	430	220

Table 25: Flood Hazard and Non-Encroachment Data for Selected Streams

Flooding Source	Cross Section	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Tributary to Mallard Creek	1484	1,484	2480	587.1	360	360
Tributary to Mallard Creek	1729	1,729	2480	587.2	360	120
Tributary to Mallard Creek	3207	3,207	2230	588.8	180	350
Tributary to Mallard Creek	4316	4,316	2110	590.1	500	100
Tributary to Mallard Creek	5000	5,000	2110	590.4	240	170
Tributary to Mallard Creek	5219	5,219	2110	591.8	270	270
Tributary to Mallard Creek	5833	5,833	2110	591.9	320	150
Tributary to Mallard Creek	6793	6,793	1910	593.0	150	40
Tributary to Mallard Creek	8259	8,259	1740	595.0	230	160
Tributary to Mallard Creek	8519	8,519	1740	595.0	130	140
Tributary to Mallard Creek	8626	8,626	1740	597.6	120	150
Tributary to Mallard Creek	9062	9,062	1740	597.7	140	190
Tributary to Mallard Creek	9815	9,815	1740	597.8	210	240
Tributary to Mallard Creek	10419	10,419	1550	597.9	170	130
Tributary to Mallard Creek	10657	10,657	1550	597.9	120	120
Tributary to Mallard Creek	10815	10,815	1550	599.2	120	120
Tributary to Mallard Creek	11175	11,175	1550	599.2	260	210
Tributary to Mallard Creek	12125	12,125	1280	599.5	120	140

Table 25: Flood Hazard and Non-Encroachment Data for Selected Streams

Flooding Source	Cross Section	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Tributary to Mallard Creek	12377	12,377	1280	600.5	70	100
Tributary to Mallard Creek	12448	12,448	1280	600.6	100	80
Tributary to Mallard Creek	12517	12,517	1280	600.7	100	80
West Flint Creek	83452	83,452	16640	593.4	190	70
West Flint Creek	85623	85,623	16640	595.2	130	120
West Flint Creek	87146	87,146	16640	596.4	190	80
West Flint Creek	88228	88,228	16000	597.0	100	170
West Flint Creek	90116	90,116	16000	598.0	220	100
West Flint Creek	90954	90,954	16000	598.4	50	220
West Flint Creek	91418	91,418	16000	598.6	60	220
West Flint Creek	91551	91,551	16000	599.0	80	220
West Flint Creek	92553	92,553	16000	599.8	430	70
West Flint Creek	95497	95,497	16000	600.8	70	140
West Flint Creek	96397	96,397	16000	601.2	280	40
West Flint Creek	98337	98,337	14740	602.2	60	170
West Flint Creek	100281	100,281	14740	603.2	180	50
West Flint Creek	100830	100,830	14740	603.5	120	90
West Flint Creek	101671	101,671	14740	603.9	150	70
West Flint Creek	102980	102,980	13240	604.6	430	60
West Flint Creek	104651	104,651	13240	605.1	120	330
West Flint Creek	105827	105,827	13240	605.3	560	300
West Flint Creek	106585	106,585	13240	605.4	700	110
West Flint Creek	106688	106,688	13240	605.8	700	110
West Flint Creek	108268	108,268	13240	605.9	60	1150
West Flint Creek	111449	111,449	13240	606.0	410	1160
West Flint Creek	112445	112,445	13240	606.0	360	820
West Flint Creek	121162	121,162	13240	606.9	440	160
West Flint Creek	122274	122,274	13240	607.2	140	570

Table 25: Flood Hazard and Non-Encroachment Data for Selected Streams

Flooding Source	Cross Section	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
West Flint Creek	123167	123,167	13240	607.3	130	450
West Flint Creek	123884	123,884	13240	607.6	340	350
West Flint Creek	124010	124,010	13240	608.2	340	350
West Flint Creek	124280	124,280	13240	608.7	410	70
West Flint Creek	128481	128,481	13240	609.6	1190	80
West Flint Creek	130655	130,655	13240	609.9	820	70
West Flint Creek	132926	132,926	13240	610.2	700	60
West Flint Creek	139238	139,238	13240	611.2	700	1130
West Flint Creek	141401	141,401	11700	611.5	50	1570
West Flint Creek	145250	145,250	10830	612.5	300	190
West Flint Creek	148693	148,693	10830	614.8	290	480
West Flint Creek	150327	150,327	10830	615.2	60	1570
West Flint Creek	155405	155,405	10830	616.5	710	110
West Flint Creek	158324	158,324	10830	617.6	1030	50
West Flint Creek	159968	159,968	10830	618.4	1080	360
West Flint Creek	163535	163,535	10830	619.8	440	580
West Flint Creek	163644	163,644	10830	619.9	440	580
West Flint Creek	164625	164,625	10830	620.1	580	1600
West Flint Creek	165837	165,837	10830	620.3	40	1010
West Flint Creek	168590	168,590	10830	621.5	1430	60
West Flint Creek	169471	169,471	10830	622.5	210	210
West Flint Creek	169782	169,782	10830	624.5	170	210
West Flint Creek	170486	170,486	9810	625.2	760	780
West Flint Creek	171990	171,990	9810	625.4	700	100
West Flint Creek	173794	173,794	9810	626.7	460	40
West Flint Creek	177192	177,192	9810	628.5	380	350
West Flint Creek	180089	180,089	9320	629.6	220	870
West Flint Creek	180651	180,651	9320	629.9	190	530
West Flint Creek	180869	180,869	9320	631.7	190	530
West Flint Creek	181374	181,374	9320	632.1	470	520

Table 25: Flood Hazard and Non-Encroachment Data for Selected Streams

Flooding Source	Cross Section	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
West Flint Creek	185072	185,072	9320	633.9	1280	40
West Flint Creek	188693	188,693	9320	635.9	1070	40

[1] Feet above mouth

[2] Water Surface Elevations Considering Backwater from West Flint Creek

6.4 Coastal Flood Hazard Mapping

This section is not applicable to this Flood Risk Project.

Table 26: Summary of Coastal Transect Mapping Considerations

[Not Applicable to this Flood Risk Project]

6.5 FIRM Revisions

This FIS Report and the FIRM are based on the most up-to-date information available to FEMA at the time of its publication; however, flood hazard conditions change over time. Communities or private parties may request flood map revisions at any time. Certain types of requests require submission of supporting data. FEMA may also initiate a revision. Revisions may take several forms, including Letters of Map Amendment (LOMAs), Letters of Map Revision Based on Fill (LOMR-Fs), Letters of Map Revision (LOMRs) (referred to collectively as Letters of Map Change (LOMCs)), Physical Map Revisions (PMRs), and FEMA-contracted restudies. These types of revisions are further described below. Some of these types of revisions do not result in the republishing of the FIS Report. To assure that any user is aware of all revisions, it is advisable to contact the community repository of flood-hazard data (shown in Table 31, "Map Repositories").

6.5.1 Letters of Map Amendment

A LOMA is an official revision by letter to an effective NFIP map. A LOMA results from an administrative process that involves the review of scientific or technical data submitted by the owner or lessee of property who believes the property has incorrectly been included in a designated SFHA. A LOMA amends the currently effective FEMA map and establishes that a specific property is not located in a SFHA. A LOMA cannot be issued for properties located on the PFD (primary frontal dune).

To obtain an application for a LOMA, visit http://www.fema.gov and download the form "MT-1 Application Forms and Instructions for Conditional and Final Letters of Map Amendment and Letters of Map Revision Based on Fill". Visit the "Flood Map-Related Fees" section to determine the cost, if any, of applying for a LOMA.

FEMA offers a tutorial on how to apply for a LOMA. The LOMA Tutorial Series can be accessed at http://www.floodmaps.fema.gov/tutorials/ot_loma.swf.

For more information about how to apply for a LOMA, call the FEMA Map Information eXchange; toll free, at 1-877-FEMA MAP (1-877-336-2627).

6.5.2 Letters of Map Revision Based on Fill

A LOMR-F is an official revision by letter to an effective NFIP map. A LOMR-F states FEMA's determination concerning whether a structure or parcel has been elevated on fill above the base flood elevation and is, therefore, excluded from the SFHA.

Information about obtaining an application for a LOMR-F can be obtained in the same manner as that for a LOMA, by visiting http://www.fema.gov for the "MT-1 Application Forms and Instructions for Conditional and Final Letters of Map Amendment and Letters of Map Revision Based on Fill" or by calling the FEMA Map Information eXchange, toll free, at 1-877-FEMA MAP (1-877-336-2627). Fees for applying for a LOMR-F, if any, are listed in the "Flood Map-Related Fees" section.

A tutorial for LOMR-F is available at http://www.floodmaps.fema.gov/tutorials/ot_lomrf.swf.

6.5.3 Letters of Map Revision

A LOMR is an official revision to the currently effective FEMA map. It is used to change flood zones, floodplain and floodway delineations, flood elevations and planimetric features. All requests for LOMRs should be made to FEMA through the chief executive officer of the community, since it is the community that must adopt any changes and revisions to the map. If the request for a LOMR is not submitted through the chief executive officer of the community, evidence must be submitted that the community has been notified of the request.

To obtain an application for a LOMR, visit http://www.fema.gov and download the form "MT-2 Application Forms and Instructions for Conditional Letters of Map Revision and Letters of Map Revision". Visit the "Flood Map-Related Fees" section to determine the cost of applying for a LOMR. For more information about how to apply for a LOMR, call the FEMA Map Information eXchange; toll free, at 1-877-FEMA MAP (1-877-336-2627) to speak to a Map Specialist.

Table 27: Incorporated Letters of Map Change

[Not Applicable to this Flood Risk Project]

6.5.4 Physical Map Revisions

PMRs are an official republication of a community's NFIP map to effect changes to base flood elevations, floodplain boundary delineations, regulatory floodways and planimetric features. These changes typically occur as a result of structural works or improvements, annexations resulting in additional flood hazard areas or correction to base flood elevations or SFHAs.

The community's chief executive officer must submit scientific and technical data to FEMA to support the request for a PMR. The data will be analyzed and the map will be revised if warranted. The community is provided with copies of the revised information and is afforded a review period. When the base flood elevations are changed, a 90-day appeal period is provided. A 6-month adoption period for formal approval of the revised map(s) is also provided.

For more information about the PMR process, please visit http://www.fema.gov and visit the "Flood Map Revision Processes" section.

6.5.5 Contracted Restudies

The NFIP provides for a periodic review and restudy of flood hazards within a given community. FEMA accomplishes this through a national watershed-based mapping needs assessment strategy, known as the Coordinated Needs Management Strategy (CNMS). The CNMS is used by FEMA to assign priorities and allocate funding for new flood hazard analyses used to update the FIS Report and FIRM. The goal of CNMS is to define the validity of the engineering study data within a mapped inventory. The CNMS is used to track the assessment process, document engineering gaps and their resolution, and aid in prioritization for using flood risk as a key factor for areas identified for flood map updates. Visit www.fema.gov to learn more about the CNMS or contact the FEMA Regional Office listed in Section 8 of this FIS Report.

6.5.6 Community Map History

The current FIRM presents flooding information for the entire geographic area of Lawrence County. Previously, separate FIRMs, Flood Hazard Boundary Maps (FHBMs) and/or Flood Boundary and Floodway Maps (FBFMs) may have been prepared for the incorporated communities and the unincorporated areas in the county that had identified SFHAs. Current and historical data relating to the maps prepared for the project area are presented in Table 28, "Community Map History." A description of each of the column headings and the source of the date is also listed below.

- *Community Name* includes communities falling within the geographic area shown on the FIRM, including those that fall on the boundary line, nonparticipating communities, and communities with maps that have been rescinded. Communities with No Special Flood Hazards are indicated by a footnote. If all maps (FHBM, FBFM, and FIRM) were rescinded for a community, it is not listed in this table unless SFHAs have been identified in this community.

- *Initial Identification Date (First NFIP Map Published)* is the date of the first NFIP map that identified flood hazards in the community. If the FHBM has been converted to a FIRM, the initial FHBM date is shown. If the community has never been mapped, the upcoming effective date or "pending" (for Preliminary FIS Reports) is shown. If the community is listed in Table 28 but not identified on the map, the community is treated as if it were unmapped.

- *Initial FHBM Effective Date* is the effective date of the first Flood Hazard Boundary Map (FHBM). This date may be the same date as the Initial NFIP Map Date.

- *FHBM Revision Date(s)* is the date(s) that the FHBM was revised, if applicable.

- *Initial FIRM Effective Date* is the date of the first effective FIRM for the community. This is the first effective date that is shown on the FIRM panel.

- *FIRM Revision Date(s)* is the date(s) the FIRM was revised, if applicable. This is the revised date that is shown on the FIRM panel, if applicable. As countywide studies are completed or revised, each community listed should have its FIRM dates updated accordingly to reflect the date of the countywide study. Once the FIRMs exist in countywide format, as Physical Map Revisions (PMR) of FIRM panels within the county

are completed, the FIRM Revision Dates in the table for each community affected by the PMR are updated with the date of the PMR, even if the PMR did not revise all the panels within that community.

The initial effective date for the Lawrence County FIRMs in countywide format was 09/11/2009.

Table 28: Community Map History

Community Name	Initial Identification Date (First NFIP Map Published)	Initial FHBM Effective Date	FHBM Revision Date(s)	Initial FIRM Effective Date	FIRM Revision Date(s)
Courtland, Town of	03/08/1974	03/08/1974	07/02/1976	04/17/1978	09/11/2009
Hillsboro, Town of	10/01/1976	10/01/1976	N/A	04/02/1986	09/11/2009
Lawrence County Unincorporated Areas	05/13/1977	05/13/1977	N/A	06/15/1981	09/11/2009
Moulton, City of	03/22/1974	03/22/1974	08/06/1976	10/16/1979	09/11/2009
North Courtland, Town of	09/11/2009	N/A	N/A	09/11/2009	N/A
Town Creek, Town of	06/14/1974	06/14/1974	04/30/1976	09/04/1985	09/11/2009

SECTION 7.0 – CONTRACTED STUDIES AND COMMUNITY COORDINATION

7.1 Contracted Studies

Table 29 provides a summary of the contracted studies, by flooding source, that are included in this FIS Report.

Table 29: Summary of Contracted Studies Included in this FIS Report

Flooding Source	FIS Report Dated	Contractor	Number	Work Completed Date	Affected Communities
All within HUC-8 06030002	11/13/2015	AMEC Foster Wheeler Environment and Infrastructure	EMA-2012-CA-5260	December 2014	Town of Courtland, Town of Hillsboro, Lawrence County Unincorporated Areas, City of Moulton, Town of North Courtland, Town of Town Creek
All within HUC-8 basins 06030002 and 06030005	09/11/2009	AMEC Environmental and Infrastructure, Inc.	EMA-2006-CA-5610	September 2009	Town of Courtland, Town of Hillsboro, Lawrence County Unincorporated Areas, City of Moulton, Town of North Courtland, Town of Town Creek
Various streams within Lawrence County Unincorporated Areas	09/11/2009	Tennessee Valley Authority	IAA-H-15-78	May 1979	Lawrence County Unincorporated Areas
Various streams within the City of Moulton	09/11/2009	Tennessee Valley Authority	IAA-H-7-77	January 1978	City of Moulton
Various streams within the Town of Courtland	09/11/2009	Tennessee Valley Authority	IAA-H-11-76	March 1977	Town of Courtland

7.2 Community Meetings

The dates of the community meetings held for this Flood Risk Project and any previous Flood Risk Projects are shown in Table 30. These meetings may have previously been referred to by a variety of names (Community Coordination Officer (CCO), Scoping, Discovery, etc.), but all meetings represent opportunities for FEMA, community officials, study contractors, and other invited guests to discuss the planning for and results of the project.

Table 30: Community Meetings

Community	FIS Report Dated	Date of Meeting	Meeting Type	Attended By
Lawrence County and Incorporated Areas	11/13/2015	05/08/2012	Discovery	City of Madison Engineer, Madison County Planning and Economic Development Director, City of Huntsville Floodplain Management Analyst, City of Huntsville Floodplain Manager, City of Huntsville Meteorologist, City of Huntsville Hydrologist, Madison County Engineer, ALDOT, Town of Owens Cross Roads Council Member, City of Hartselle Dept. of Development Director, Madison County Assistant Engineer, City of Huntsville GIS Manager, City of Huntsville Engineer, Madison County Emergency Plans Coordinator
		05/09/2012	Discovery	Cullman County EMA, Cullman County Engineer, Morgan County Engineer, Mitigation, Town of Mooresville Building Inspector, Lawrence County Assistant County Engineer, City of Athens GIS Coordinator, Lawrence County EMA Director, Town of Mooresville Floodplain Administrator, Morgan County Assistant Engineer, City of Decatur Code Inspector Supervisor, City of Decatur Public Works Director, City of Decatur GIS Dept., City of Athens Public Works Director, Lawrence County Deputy Director, City of Decatur Building Dept., City of Decatur Planner, City of Hartselle Mayor, City of Decatur Economic and Community Development Director, State EMA Mitigation Planner, Limestone County EMA Director, Cullman County Revenue Commissioner, Limestone County Engineer
		TBD	Resilience	TBD
		TBD	CCO Open House	TBD
Lawrence County and Incorporated Areas	9/11/2009	01/23/2007	Initial CCO	Representatives of Lawrence County, AMEC Earth and Environmental, Inc., Alabama Department of Economic and Community Affairs, Office of Water Resources, FEMA

Table 30: Community Meetings

Community	FIS Report Dated	Date of Meeting	Meeting Type	Attended By
		09/11/2008	Final CCO	Representatives of Lawrence County, AMEC Earth and Environmental, Inc., Alabama Department of Economic and Community Affairs, Office of Water Resources, FEMA
Lawrence County Unincorporated Areas	9/11/2009	04/14/1978	Initial CCO	
		03/11/1980	Final CCO	
City of Moulton	9/11/2009	10/07/1976	Initial CCO	
		10/18/1978	Final CCO	
Town of Courtland	9/11/2009	03/1975	Initial CCO	
		05/05/1977	Final CCO	

SECTION 8.0 – ADDITIONAL INFORMATION

Information concerning the pertinent data used in the preparation of this FIS Report can be obtained by submitting an order with any required payment to the FEMA Engineering Library. For more information on this process, see http://www.fema.gov.

The additional data that was used for this project includes the FIS Report and FIRM that were previously prepared for Lawrence County, (FEMA 2009).

Table 31 is a list of the locations where FIRMs for Lawrence County can be viewed. Please note that the maps at these locations are for reference only and are not for distribution. Also, please note that only the maps for the community listed in the table are available at that particular repository. A user may need to visit another repository to view maps from an adjacent community.

Table 31: Map Repositories

Community	Address	City	State	Zip Code
Town of Courtland	361 College Street	Courtland	AL	35618
Town of Hillsboro	11355 Main Street	Hillsboro	AL	35643
Lawrence County Unincorporated Areas	750 Main Street	Moulton	AL	35650
City of Moulton	720 Seminary Street	Moulton	AL	35650
Town of North Courtland	1181 Davis Street	North Courtland	AL	35618
Town of Town Creek	15935 Main Street	Town Creek	AL	35672

The National Flood Hazard Layer (NFHL) dataset is a compilation of effective FIRM databases and LOMCs. Together they create a GIS data layer for a State or Territory. The NFHL is updated as studies become effective and extracts are made available to the public monthly. NFHL data can be viewed or ordered from the website shown in Table 32.

Table 32 contains useful contact information regarding the FIS Report, the FIRM, and other relevant flood hazard and GIS data. In addition, information about the State NFIP Coordinator and GIS Coordinator is shown in this table. At the request of FEMA, each Governor has designated an agency of State or territorial government to coordinate that State's or territory's NFIP activities. These agencies often assist communities in developing and adopting necessary floodplain management measures. State GIS Coordinators are knowledgeable about the availability and location of State and local GIS data in their state.

Table 32: Additional Information

FEMA and the NFIP	
FEMA and FEMA Engineering Library website	http://www.fema.gov
NFIP website	http://www.fema.gov/national-flood-insurance-program
NFHL Dataset	http://msc.fema.gov
FEMA Region IV	Federal Emergency Management Agency 3003 Chamblee Tucker Road, Atlanta, GA 30341 (770) 220-5200
Other Federal Agencies	
USGS website	http://www.usgs.gov
Hydraulic Engineering Center website	http://www.hec.usace.army.mil
State Agencies and Organizations	
State NFIP Coordinator	Corey Garyotis, PE, CFM Alabama Dept. of Economic and Community Affairs Office of Water Resources 401 Adams Avenue Montgomery, AL 36104 (334) 353-0853 corey.garyotis@adeca.alabama.gov
State GIS Coordinator	Michael Vanhook State of Alabama Geospatial Office (ALGO) 64 North Union Street Room 200A Montgomery, AL 36130 mike.vanhook@isd.alabama.gov

SECTION 9.0 – BIBLIOGRAPHY AND REFERENCES

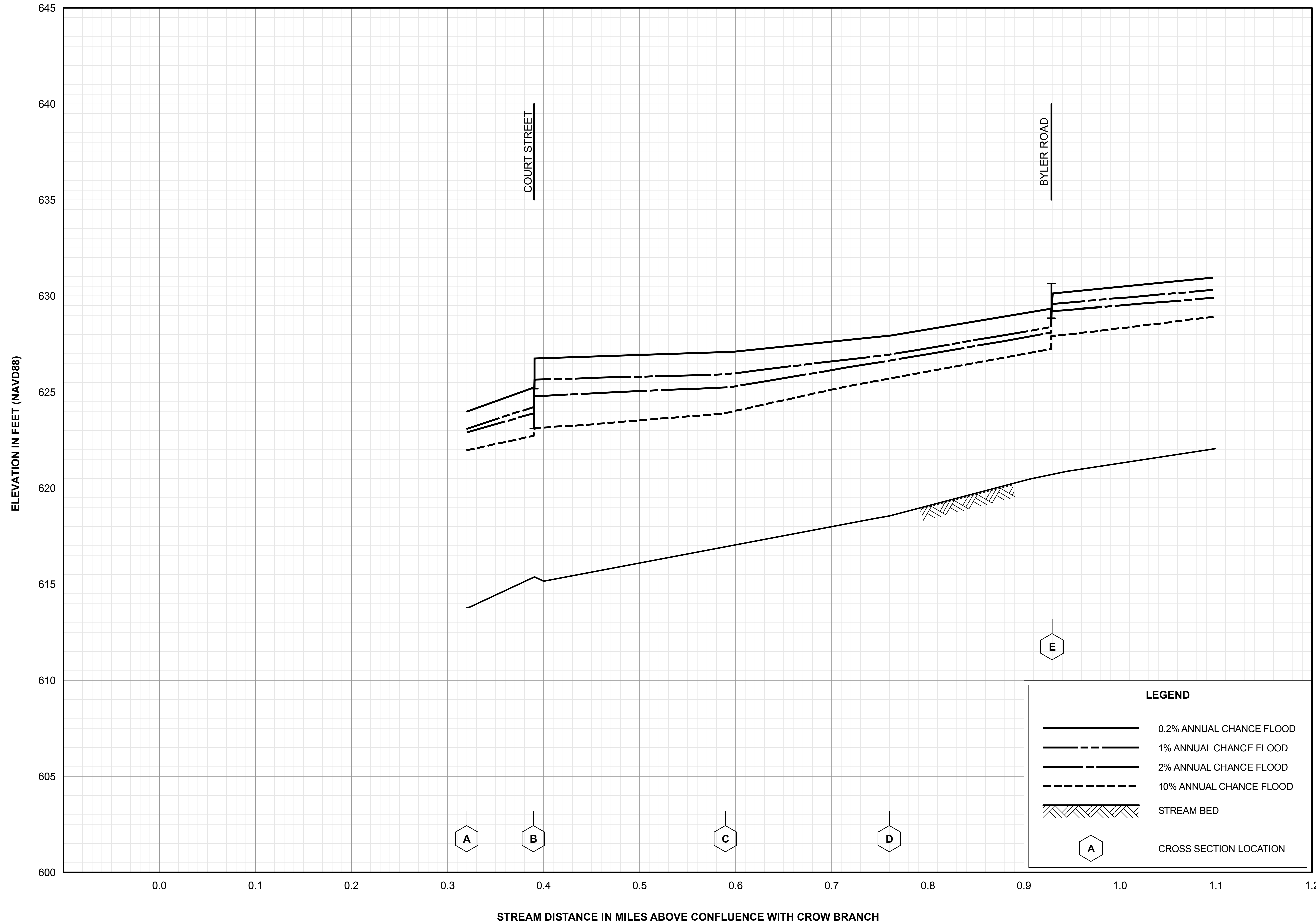
Table 33 includes sources used in the preparation of and cited in this FIS Report as well as additional studies that have been conducted in the study area.

Table 33: Bibliography and References

Citation in this FIS	Publisher/ Issuer	*Publication Title,* "Article," Volume, Number, etc.	Author/Editor	Place of Publication	Publication Date/ Date of Issuance	Link
FEMA 2009	Federal Emergency Management Agency	*Flood Insurance Study, Lawrence County, Alabama, and Unincorporated Areas*		Washington, D.C.	September 2009	FEMA Map Service Center http://msc.fema.gov
FIA 1977	U.S. Department of Housing and Urban Development, Federal Insurance Administration	*Town of Courtland, Alabama, Flood Insurance Study*		Washington, D.C.	October 1977	FEMA Map Service Center http://msc.fema.gov
TVA 1974	Tennessee Valley Authority	*Flood of March 1973 in the Tennessee River Basin," Report No. 0-7129*	Division of Water Control Planning	Knoxville, Tennessee	June 1974	www.tva.gov
TVA 1972	Tennessee Valley Authority	*Floods on Crow Branch, Almon Branch, and Eddy Creek in Vicinity of Moulton, Alabama, Special Report*		Knoxville, Tennessee	April 1972	www.tva.gov
TVA 1963	Tennessee Valley Authority	*Floods on Big Nance Creek in Vicinity of Courtland, Alabama, Report No. 0-6291*	Division of Water Control Planning	Knoxville, Tennessee	May 1963	www.tva.gov
USGS 2007	USGS	*Magnitude and Frequency of Floods in Alabama, 2003, SIR 2007-5204*	T.S. Hedgecok and Toby D. Feaster	Reston, Virginia	2007	www.usgs.gov
USGS 2004	USGS	*Magnitude and Frequency of Floods on Small Rural Streams in Alabama, SIR 2004-5135*	T.S. Hedgecock	Reston, Virginia	2004	www.usgs.gov

Table 33: Bibliography and References

Citation in this FIS	Publisher/ Issuer	*Publication Title,* "Article," Volume, Number, etc.	Author/Editor	Place of Publication	Publication Date/ Date of Issuance	Link
USACE 2010	USACE	*HEC-RAS River Analysis System User's Manual Version 4.1*	Gary W. Brunner	Davis, California	January 2010	www.usace.army.mil



FLOOD PROFILES

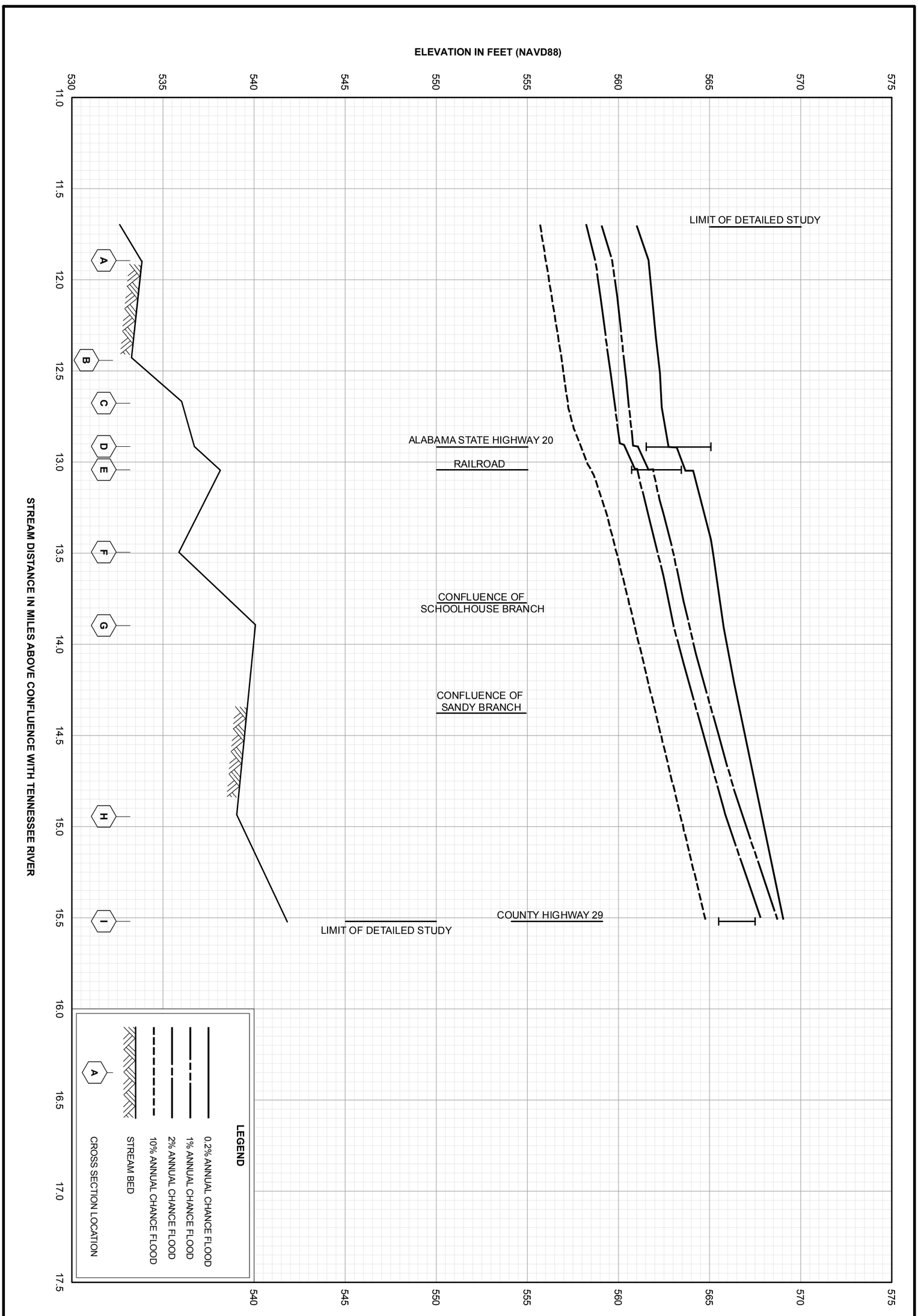
ALMON BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAWRENCE COUNTY, AL

AND INCORPORATED AREAS

01P



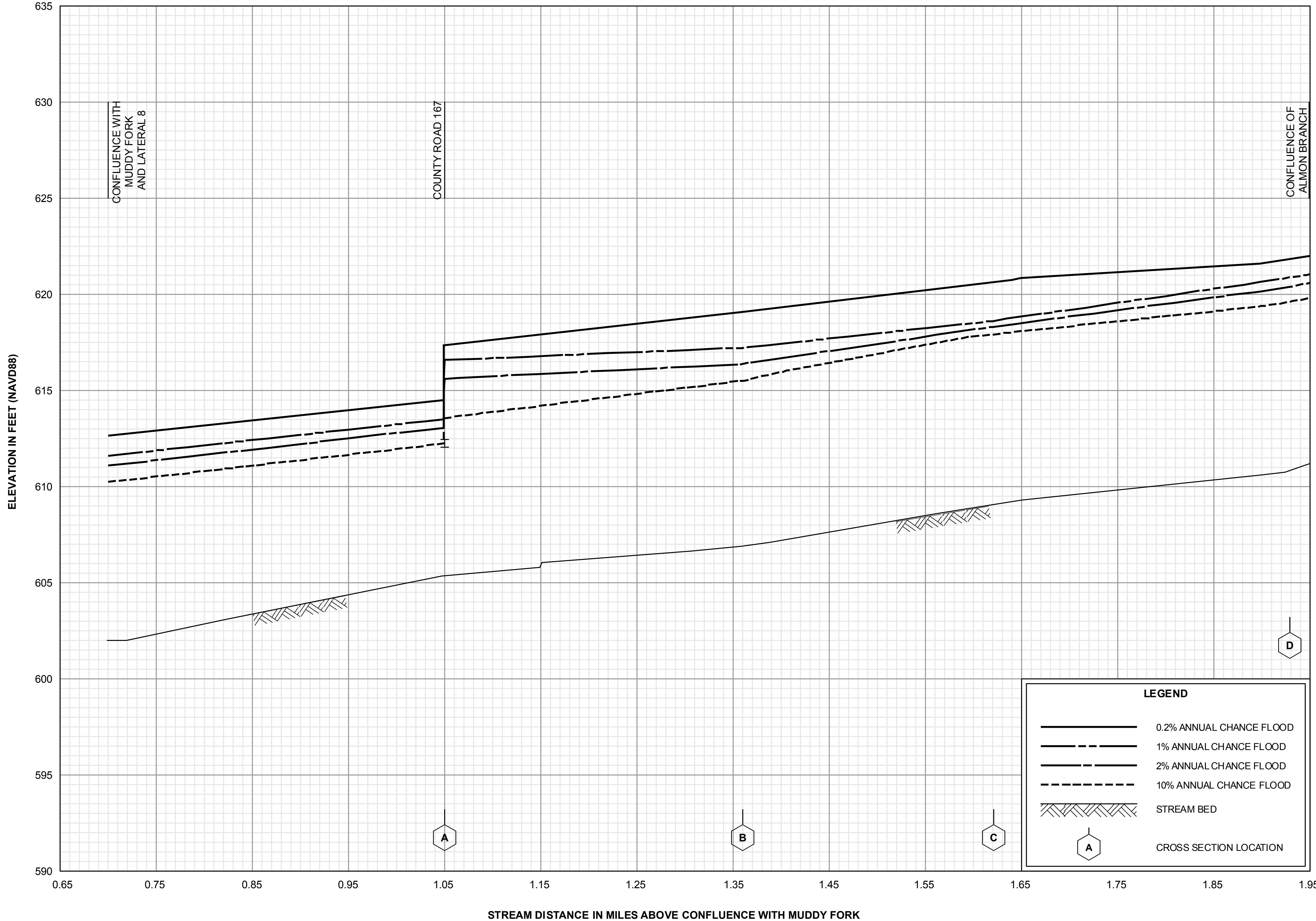
02P

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAWRENCE COUNTY, AL
AND INCORPORATED AREAS

FLOOD PROFILES

BIG NANCE CREEK



FLOOD PROFILES

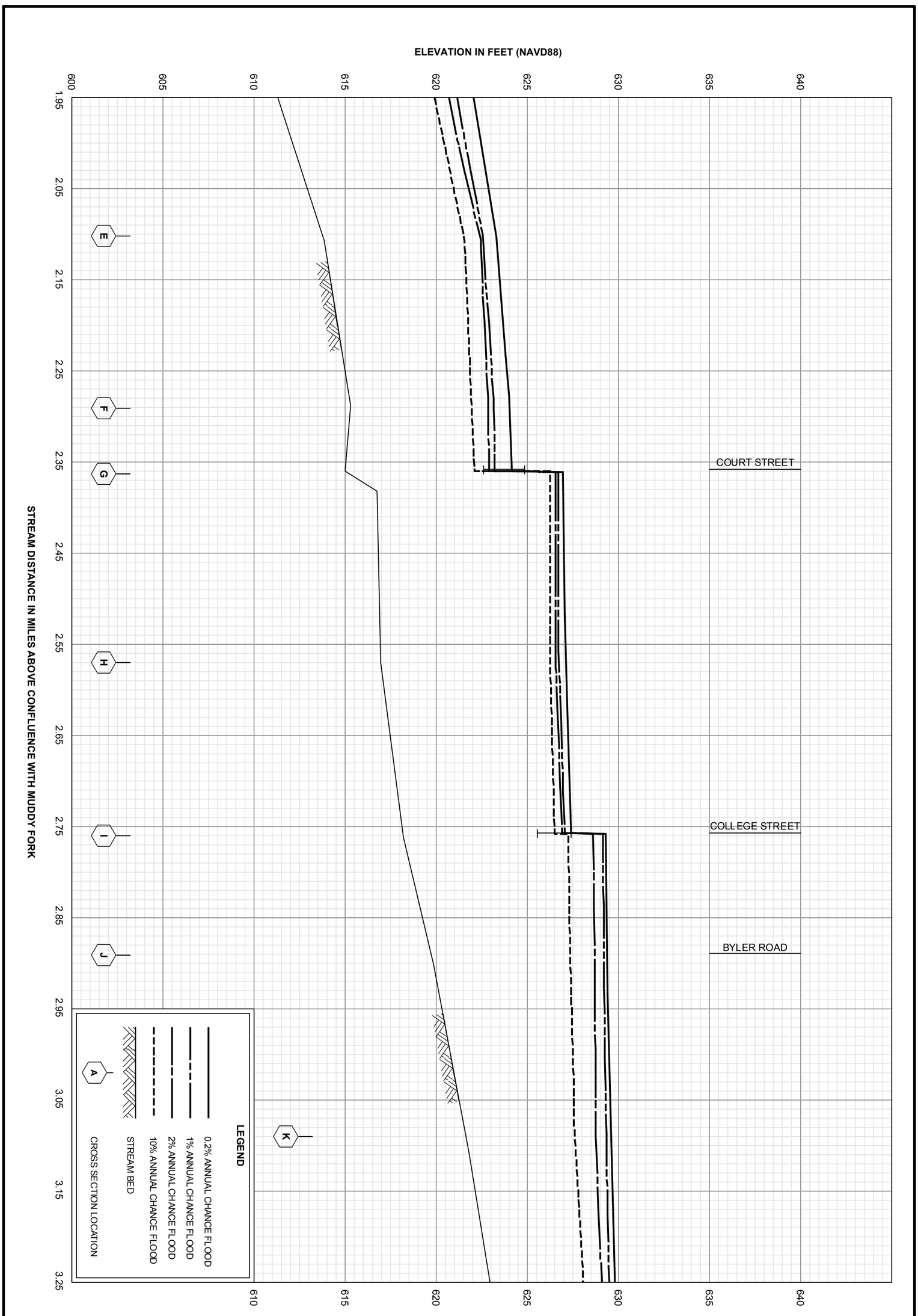
CROW BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAWRENCE COUNTY, AL

AND INCORPORATED AREAS

03P



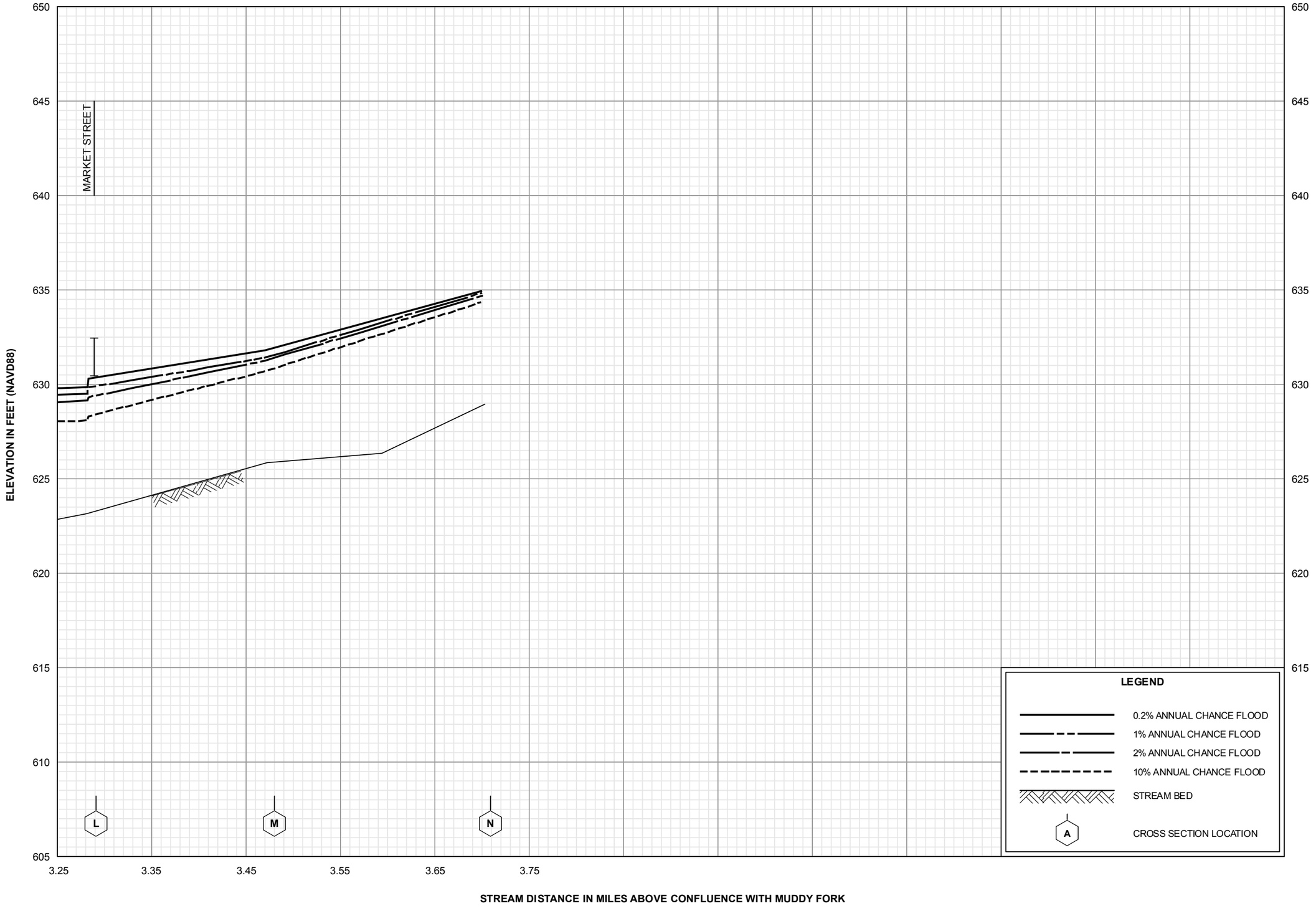
04P

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAWRENCE COUNTY, AL
AND INCORPORATED AREAS

FLOOD PROFILES

CROW BRANCH



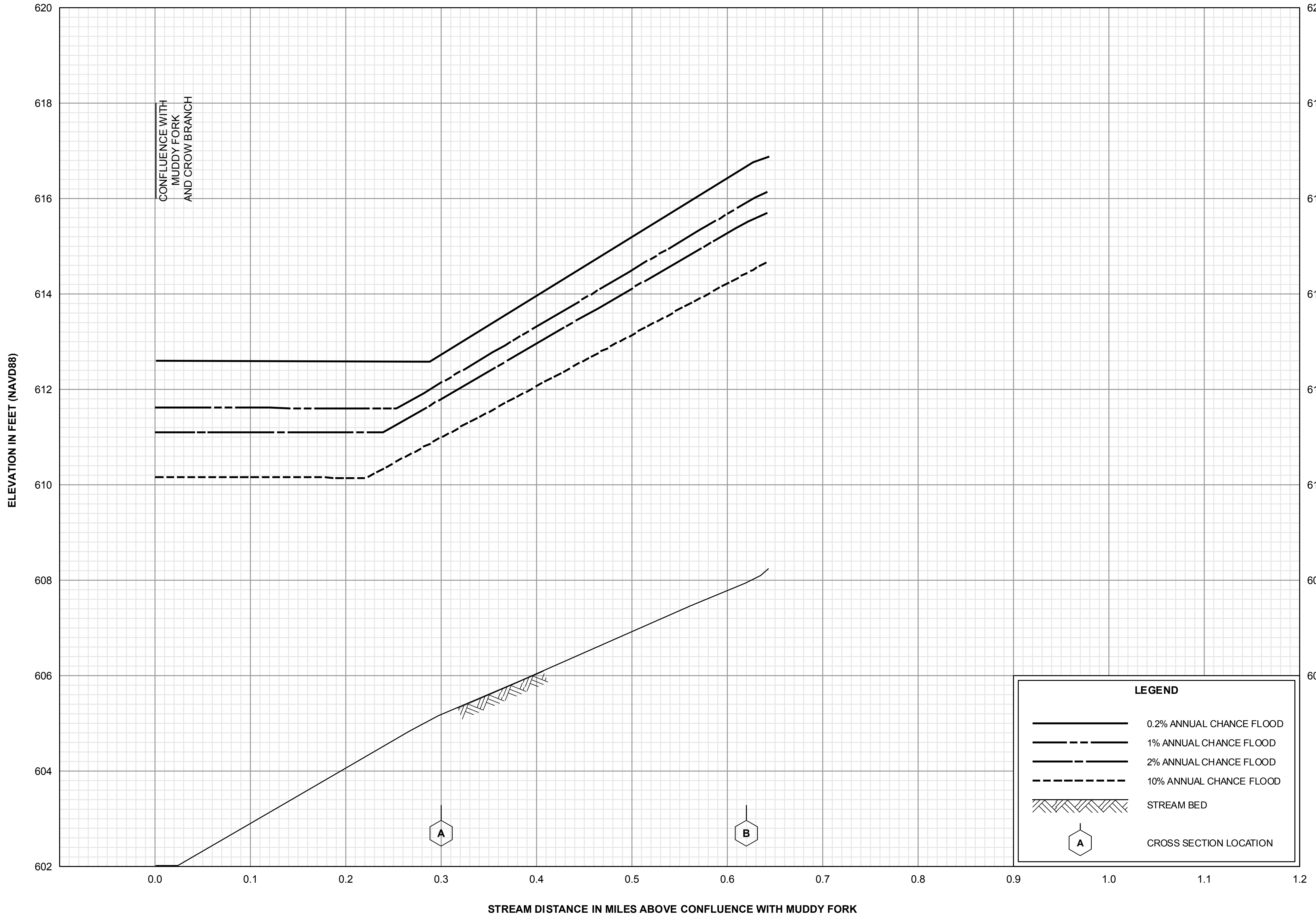
FLOOD PROFILES

CROW BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAWRENCE COUNTY, AL
AND INCORPORATED AREAS

05P



FLOOD PROFILES

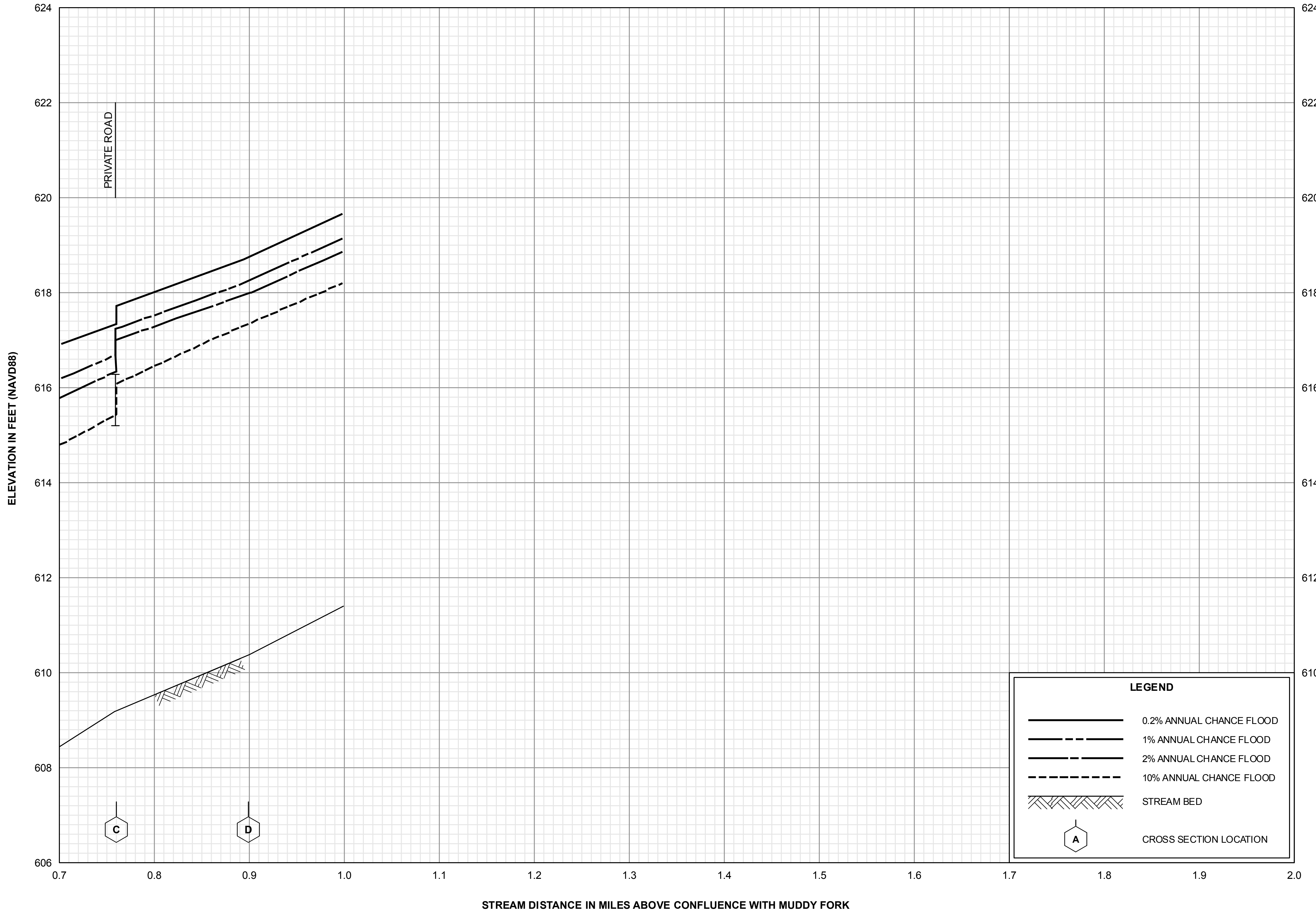
LATERAL NO. 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAWRENCE COUNTY, AL

AND INCORPORATED AREAS

06P



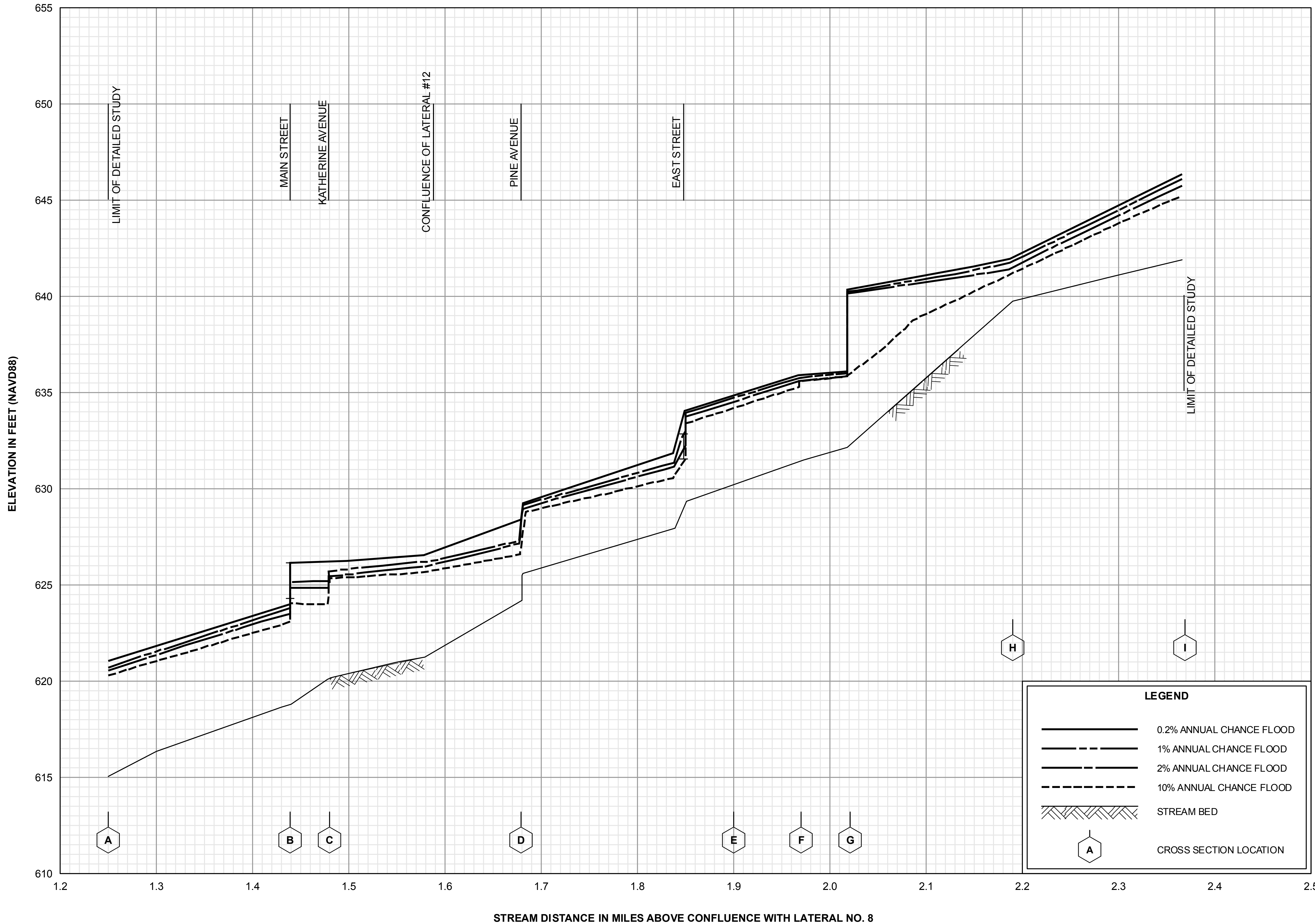
FLOOD PROFILES

LATERAL NO. 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAWRENCE COUNTY, AL
AND INCORPORATED AREAS

07P



FLOOD PROFILES

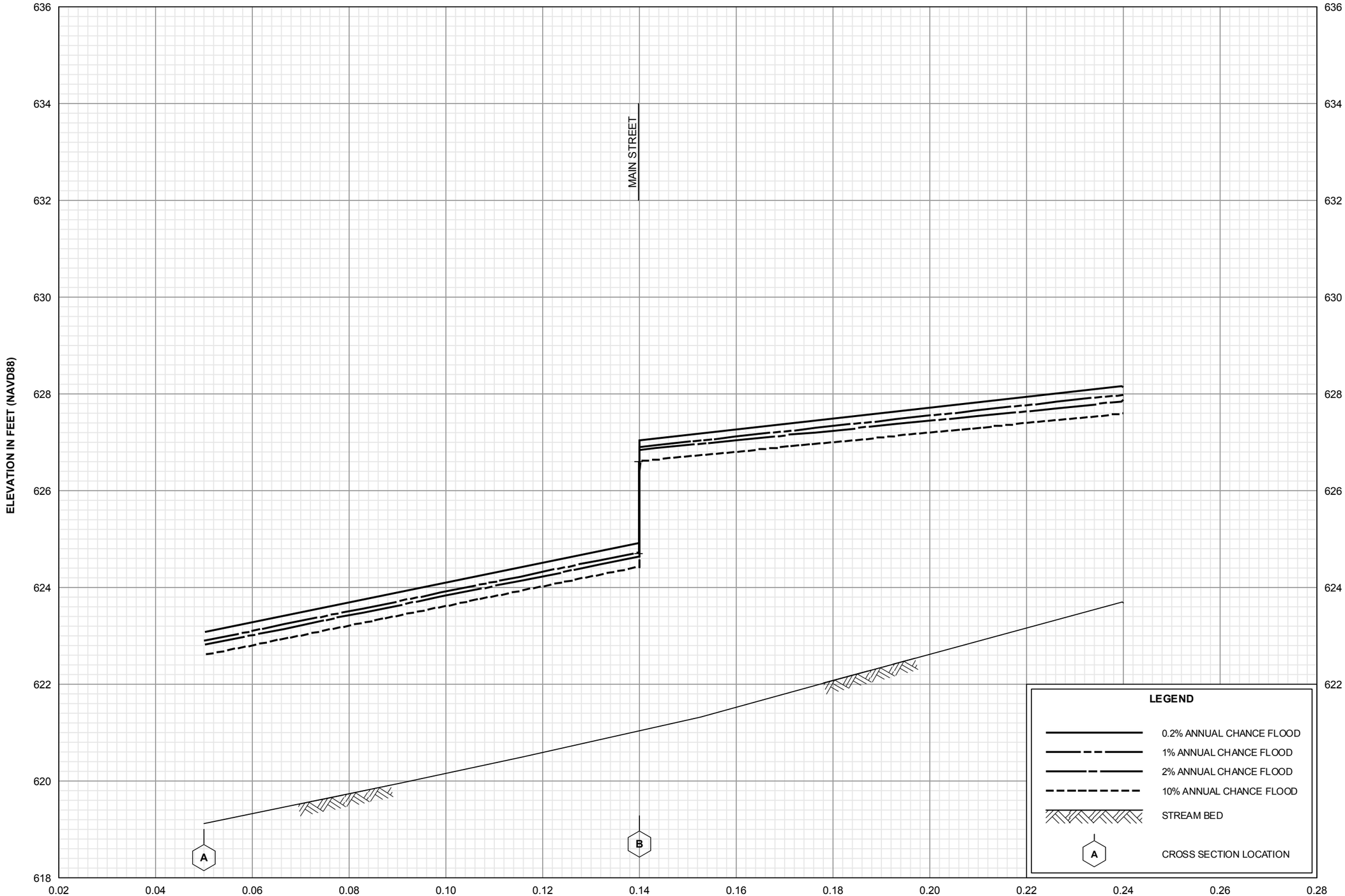
LATERAL NO. 8-14

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAWRENCE COUNTY, AL

AND INCORPORATED AREAS

08P



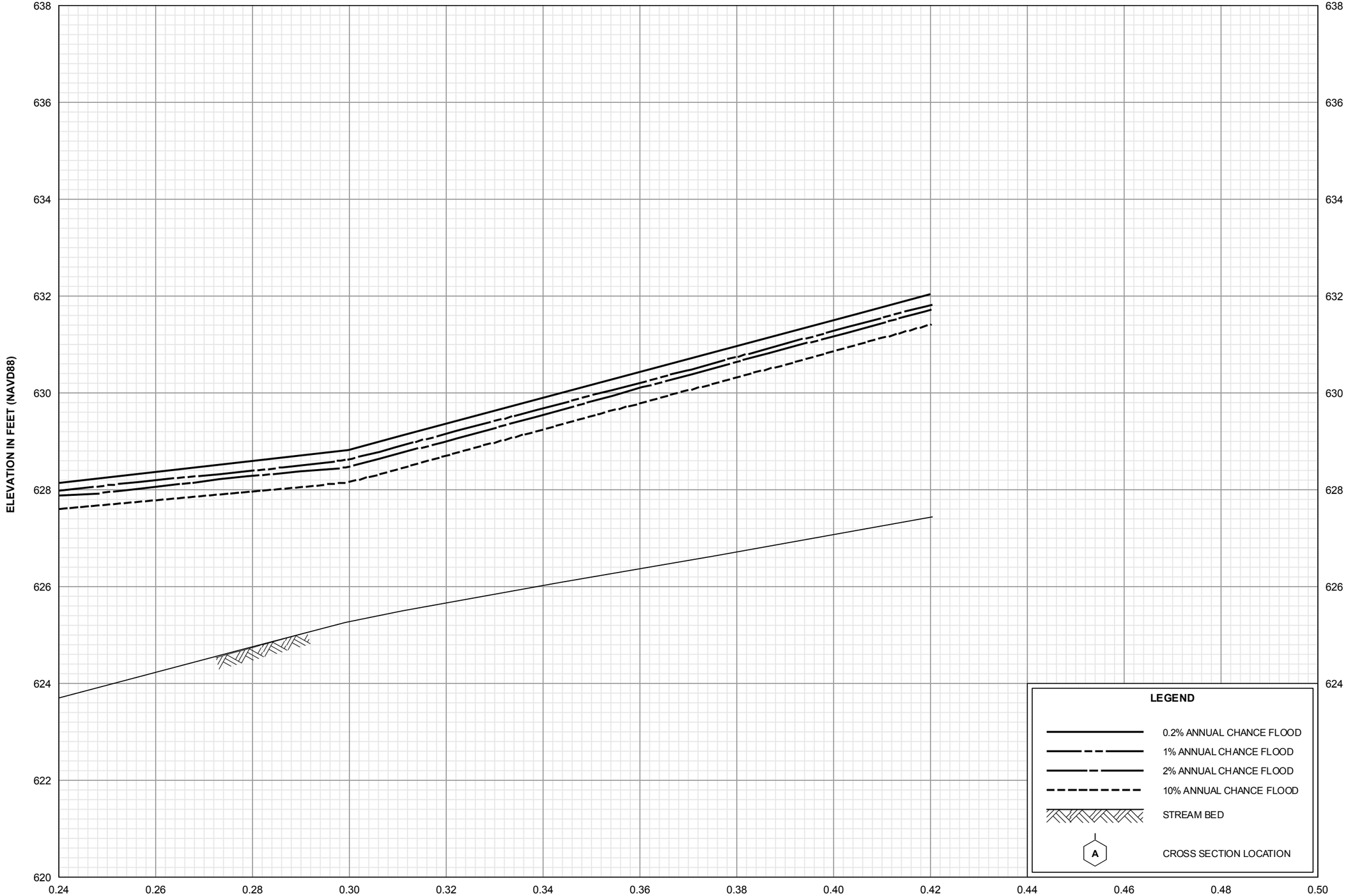
FLOOD PROFILES

LATERAL NO. 11

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAWRENCE COUNTY, AL
AND INCORPORATED AREAS

09P



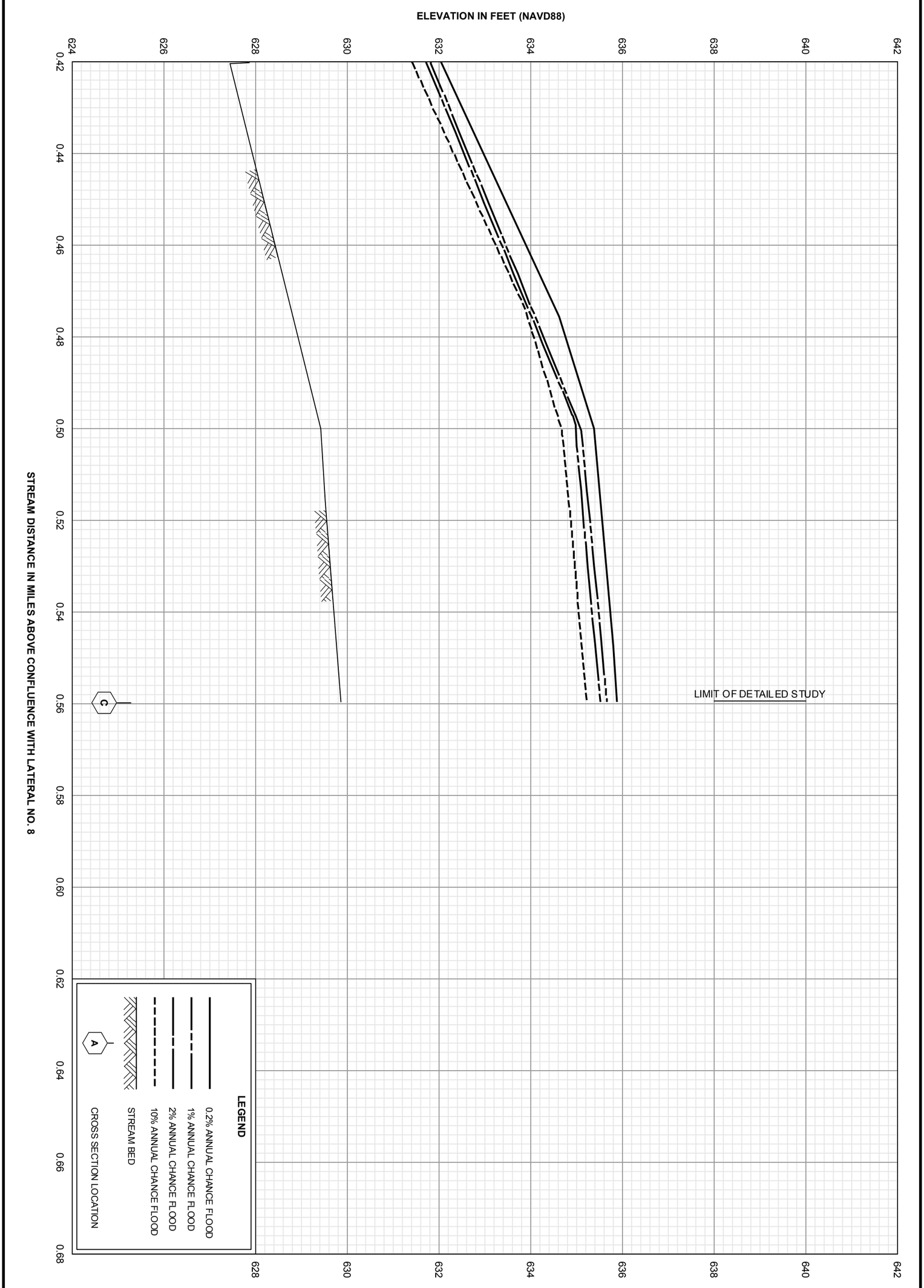
FLOOD PROFILES

LATERAL NO. 11

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAWRENCE COUNTY, AL
AND INCORPORATED AREAS

10P

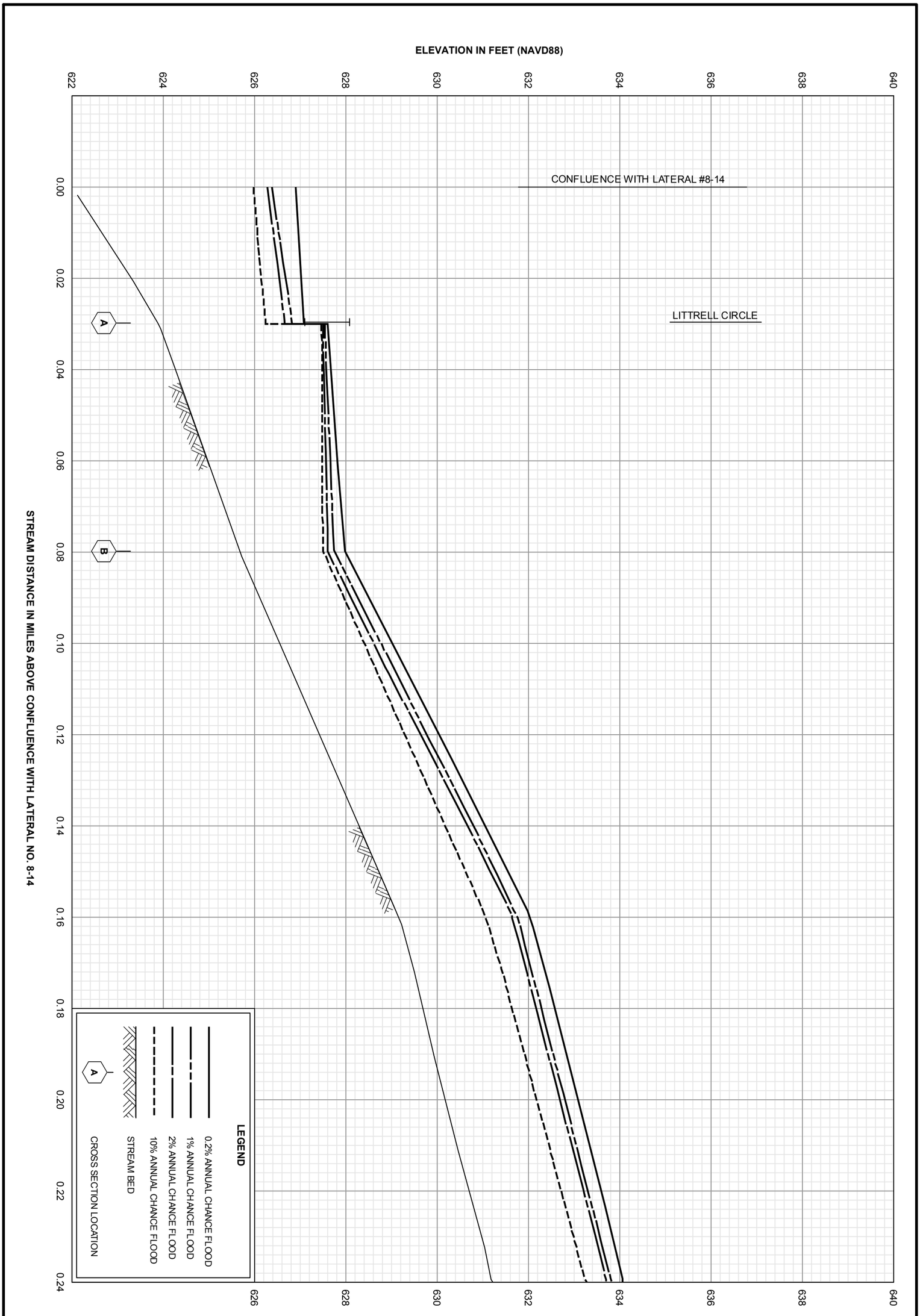


FEDERAL EMERGENCY MANAGEMENT AGENCY

LAWRENCE COUNTY, AL
AND INCORPORATED AREAS

FLOOD PROFILES

LATERAL NO. 11



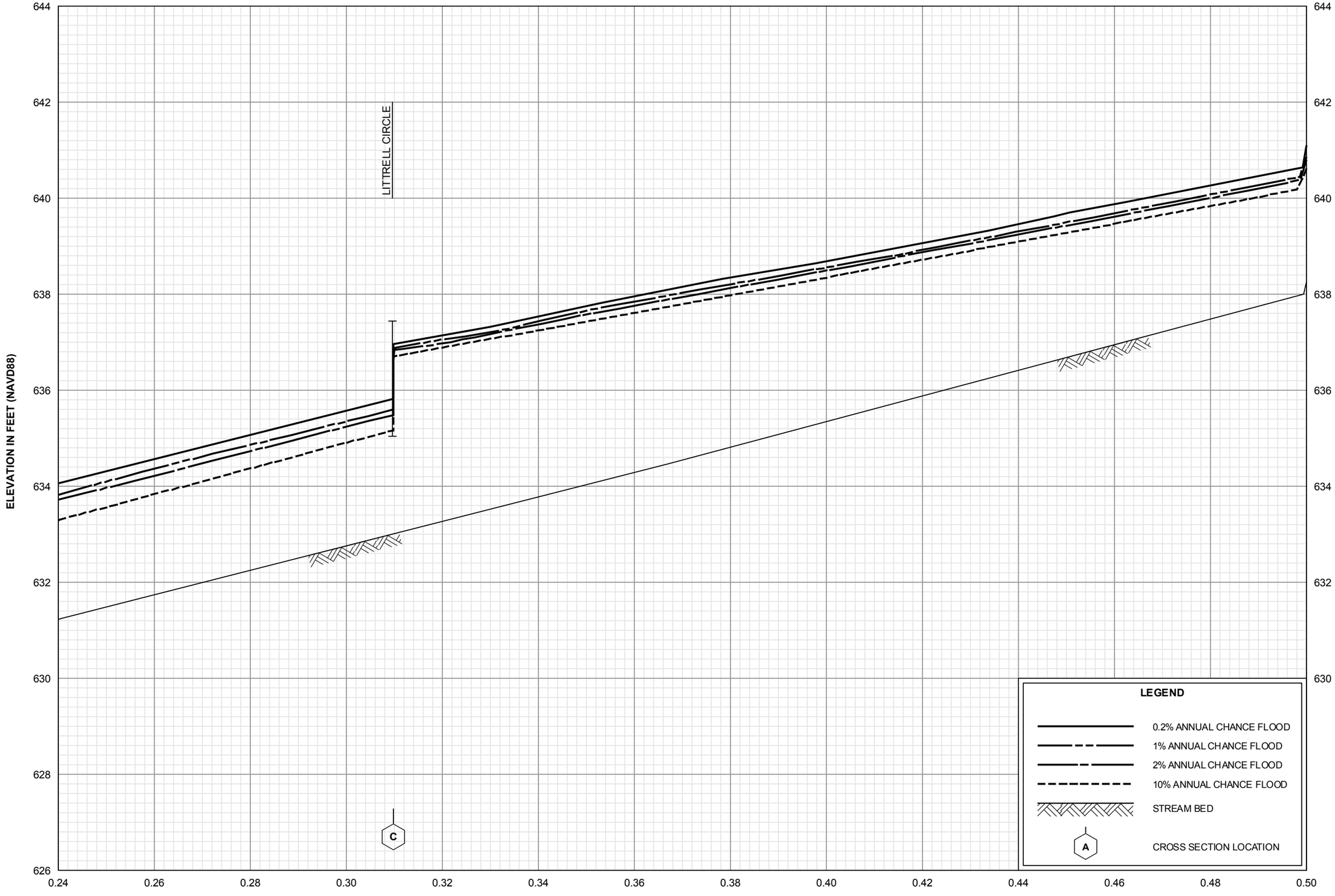
12P

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAWRENCE COUNTY, AL
AND INCORPORATED AREAS

FLOOD PROFILES

LATERAL NO. 12



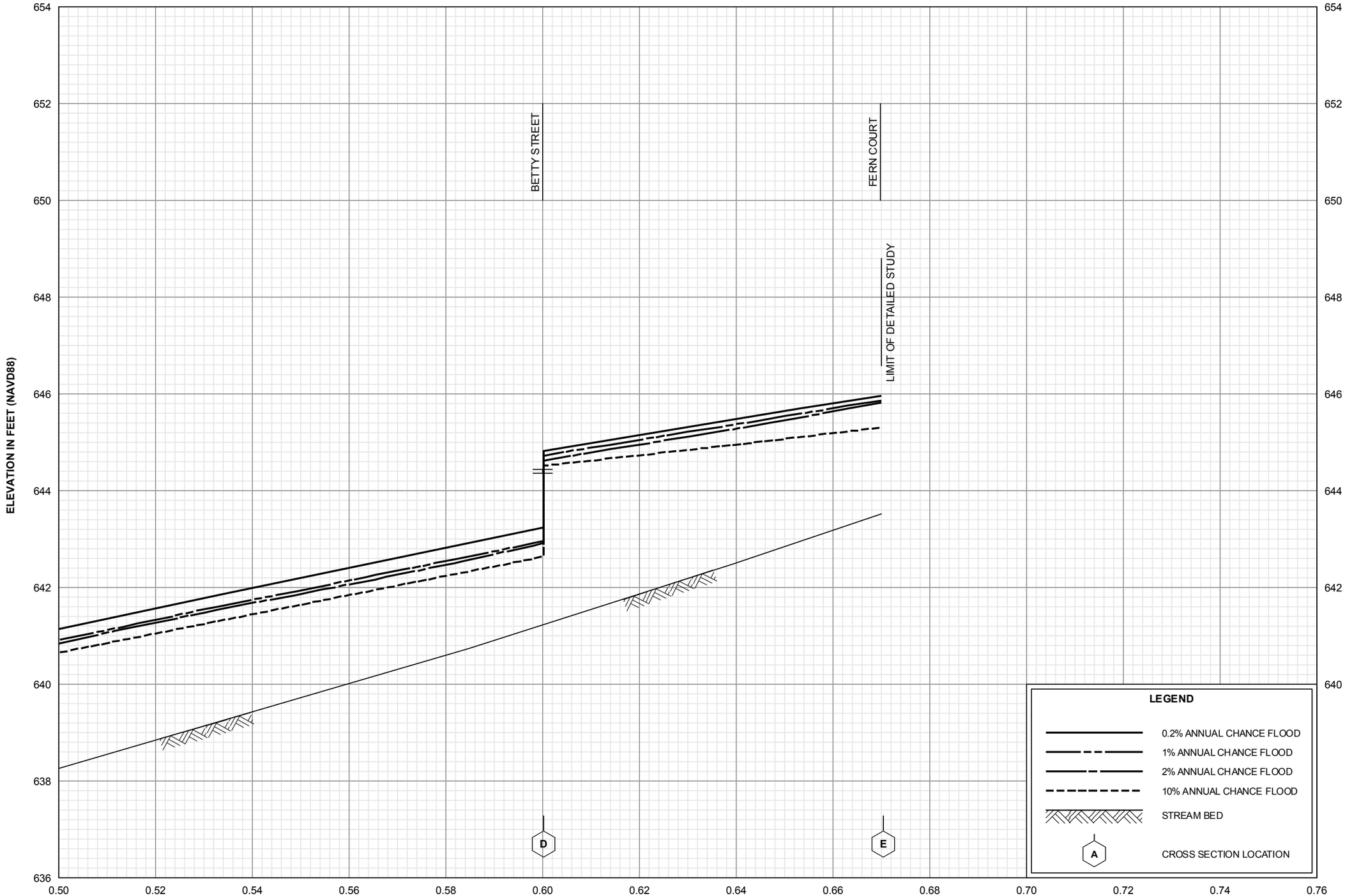
FLOOD PROFILES

LATERAL NO. 12

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAWRENCE COUNTY, AL
AND INCORPORATED AREAS

13P



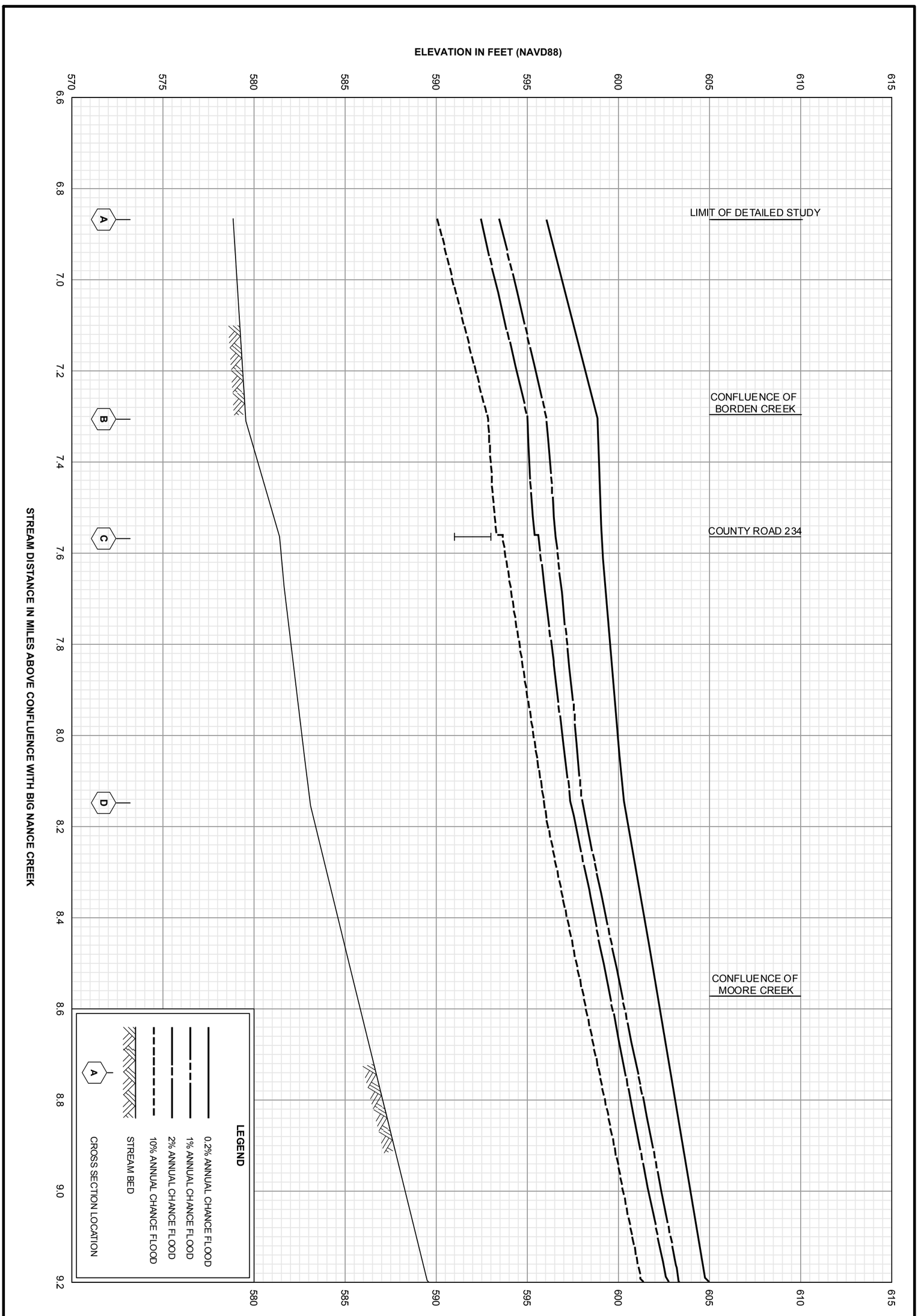
FLOOD PROFILES

LATERAL NO. 12

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAWRENCE COUNTY, AL
AND INCORPORATED AREAS

14P



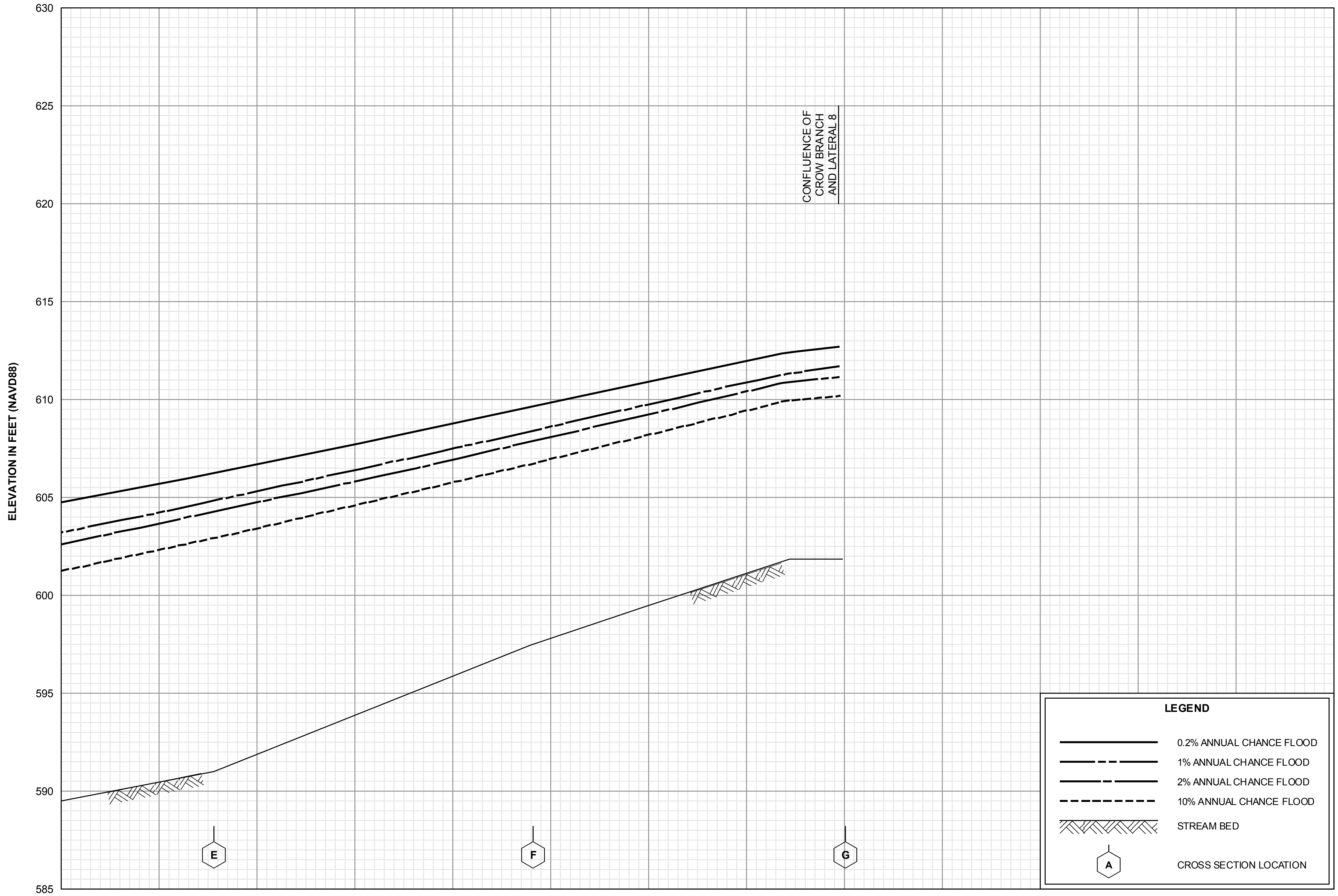
15P

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAWRENCE COUNTY, AL
AND INCORPORATED AREAS

FLOOD PROFILES

MUDDY FORK



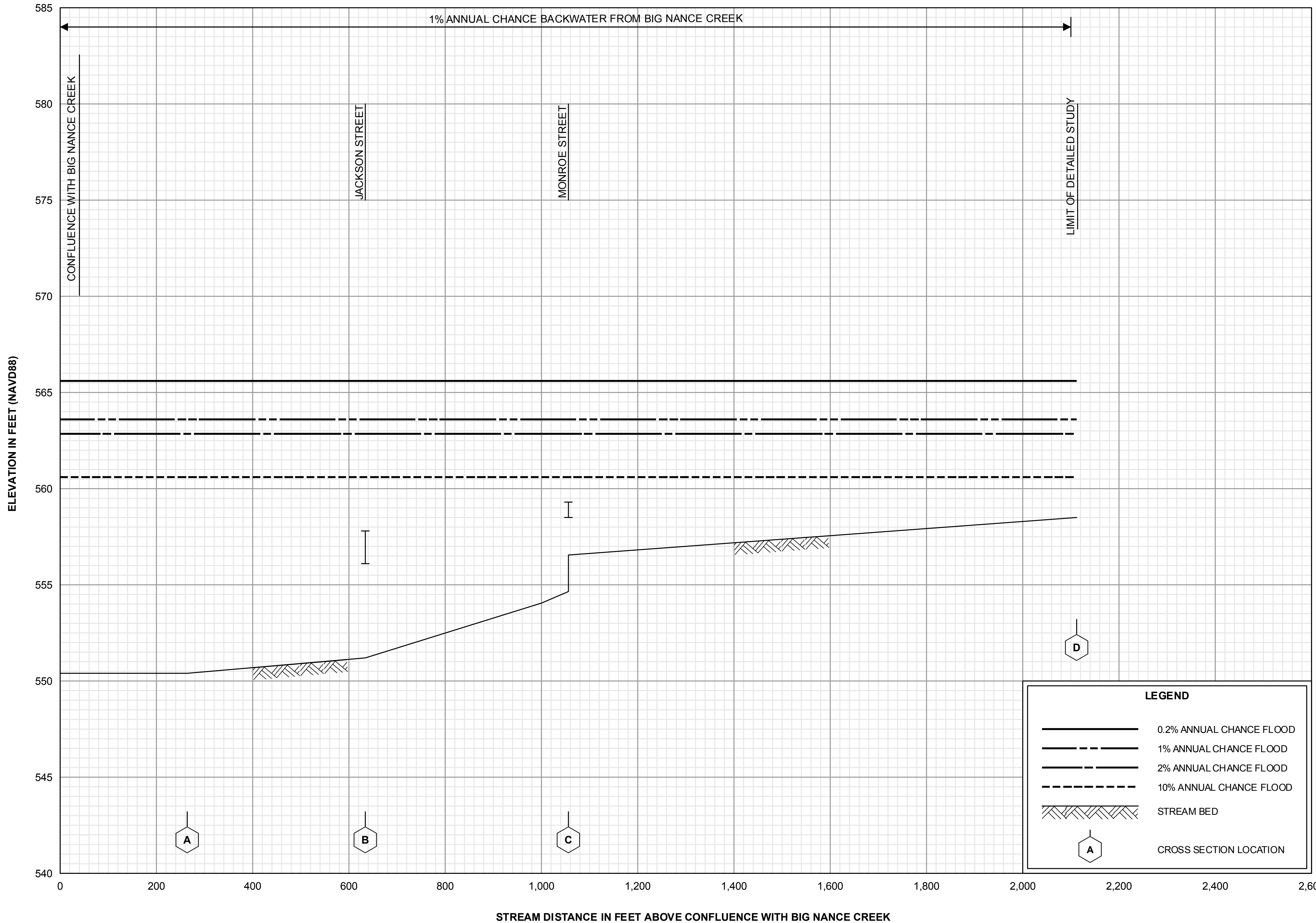
FLOOD PROFILES

MUDDY FORK

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAWRENCE COUNTY, AL

AND INCORPORATED AREAS



FLOOD PROFILES

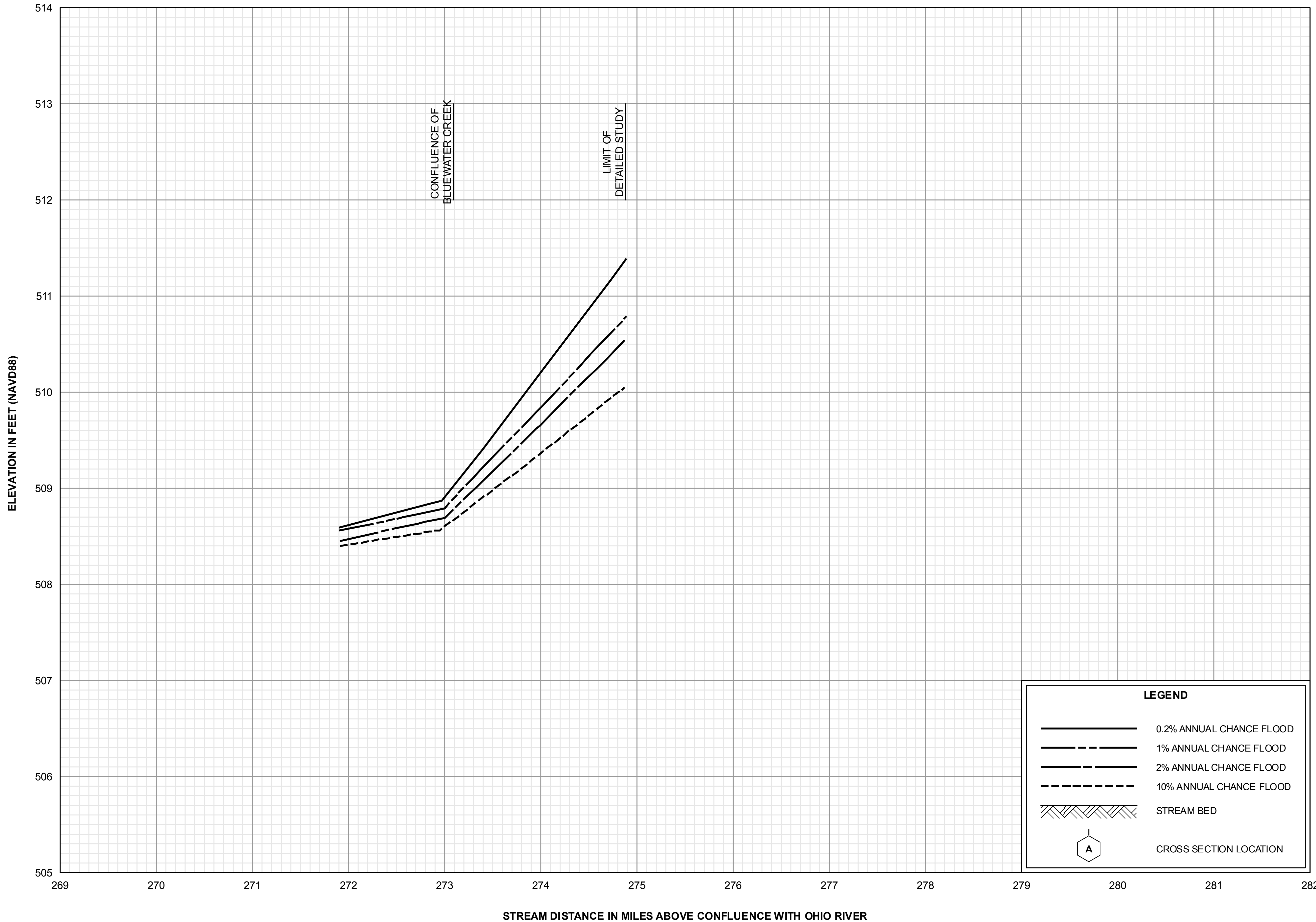
SCHOOLHOUSE BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAWRENCE COUNTY, AL

AND INCORPORATED AREAS

17P



FLOOD PROFILES

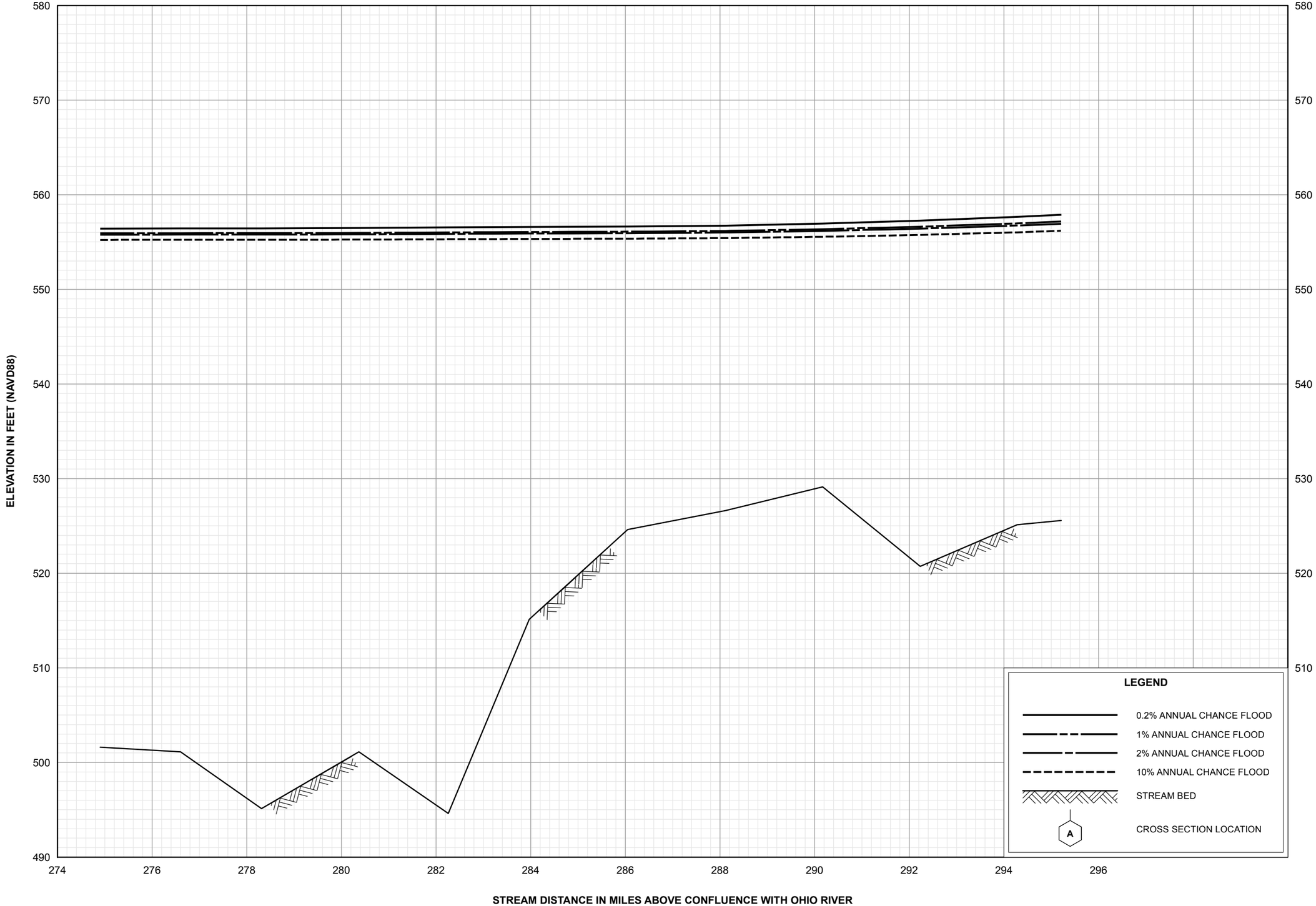
TENNESSEE RIVER (WILSON LAKE)

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAWRENCE COUNTY, AL

AND INCORPORATED AREAS

18P



FLOOD PROFILES

TENNESSEE RIVER (WHEELER LAKE)

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAWRENCE COUNTY, AL
AND INCORPORATED AREAS

19P